


VALLEY OF INVISIBLE MEN *by* EDMOND HAMILTON

SEE  
BACK  
COVER

# AMAZING STORIES

MARCH  
20c



*The*  
**RAID  
FROM  
MARS**

*by*  
MILES J. BREUER

AND  
GREAT  
STORIES BY  
ED EARL REPP  
ROBERT BLOCH  
F. A. KUMMER, JR.

VALLEY OF INVISIBLE MEN *by* EDMOND HAMILTON

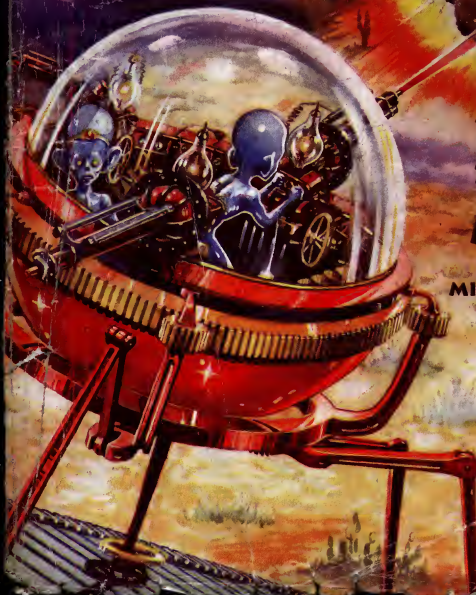
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# Get rid of that telltale **DANDRUFF** for keeps—with **LISTERINE**



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*Sensational discovery that a germ causes dandruff leads to antiseptic therapy. Listerine Antiseptic relieves and masters dandruff, tests prove. 76% of patients of New Jersey clinic got amazing relief.*

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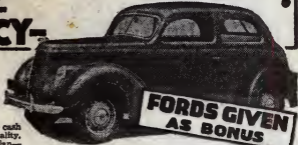
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MARCH  
1939

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VOLUME 13  
NUMBER 3

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MARCH 1939

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Volume XIII  
Number 3

# Mr. Mattingly & Mr. Moore tune in on a bargain in fine whiskies!

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Oh, Mr. Mattingly,  
Have you noticed how  
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And the answer that they voice is:  
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"Yes, Mr. Moore,  
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raising gladsome cries..."



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# The OBSERVATORY

by THE Editor

**A**N editor's biggest problem is selecting stories his readers will like, because if the stories don't go over, the magazine is a flop, and the editor goes back to digging ditches. So naturally, he scans the material submitted to him with a hyper-critical eye, and if he is the average editor, his rejection basket is always filled to overflowing. But if he is a science fiction editor, he has a keener problem. And this problem is simply that his field of authors is extremely limited. How many writers understand the field of science fiction well enough to do good science fiction? So, the science fiction editor doesn't get the mountain of material other magazines receive.

Manuscript after manuscript he picks up hopefully, and scans it to the last page. Usually the manuscript is accompanied by a letter which goes something like this: "Dear Editor: I think I have a new science fiction idea here, and I've tried to work it up with plenty of action and novel twists. You'll drop dead with the amazing things I've revealed to the palpitating reader."

Well, the editor doesn't drop dead, but he does droop lower and lower in his chair until finally the last manuscript in the day's mail finds its way into the rejection basket. He's read a dozen grand new ideas, and followed characters through the most amazing experiences he's ever seen captured on prosaic white paper. But with a groan of anguish he gets down on his knees and prays: "forgive them for they know not what they do!"

Ideas, ideas, ideas! **BUT NOT ONE STORY!** Writers who *can* write, who *know* science, but who *don't* write stories.

In one manuscript the character, John Smyth (with a y to get it out of the rut other authors fall into!) goes on a travel tour to the 18th dimension, where he encounters a new scientific principle never before suggested in science fiction. But when all is said and done, it is a glorified Cook's tour, and the story, the characters, and the outcome have no *significance* whatever. The reader, having placed himself in the hero's place, feels no glow of satisfaction at the knowledge that he has accomplished something noble, or something generous, or something that meant a terrific battle in his own soul. The story, in short, was no story, no living, breathing plot

that could in any sense be said to have *human* significance.

In another manuscript, John Smith (i this time because the author was in a rut!) saves the world from destruction by means of his new super-tensor solar ray. But the fact that in so doing, he made his own creation, his whole life, worth the candle and of high human significance, never entered into the story. The mental agonies, the brave deeds, the supreme sacrifices, the clever intrigue that gave him final triumph, failed to appear. In fact, outside of saving the world, which any man could have done with his equipment (even a villain), he meant not a thing as a human being. And to readers who are human beings, he did not relate himself in any way. He might have been a robot for all the reader cares what eventually happens to him.

That, in a nutshell, is what your editor considers a science fiction story should be. Warner Van Lorne did a fine job in "Wanted: 7 Fearless Engineers," and he did it better than any other author in recent months. John Russell Fearn did it in his "A Summons From Mars." Thornton Ayre succeeded in "The Secret of the Ring."

Every character in a story must have a reason for being there, have a right to do what he does.

There need be nothing sensational, no incredible new scientific principle. Just down-to-earth science, with an air of real practicality. And yet, it can be amazing to the nth degree. If the human significance is there, the story powerful enough, it will satisfy!

When an editor gets a story like that, he knows he's giving the readers what they want, and with thankfulness, he turns once more to his incoming manuscripts, fervently hoping that still more of the same will turn up in short order, and that not one, but dozens of authors will suddenly discover what is meant by a story and earn a solid place up with writers like Weinbaum, Merritt, Binder, Ayre and Burroughs.

\* \* \*

**W**HAT are dreams? This question has been answered by psychologists in various manners, and they are generally attributed to the subconscious mind. It seems that when asleep,

(Continued on page 122)



# THE RAID FROM MARS

BY  
MILES J. BREUER

## CHAPTER I

### The Radium Rafts

**I**N a corner office of the ground floor of the Department of Justice Building in Washington, D. C., a man sat bent over his desk with his forehead in his hands. He was a keen and powerful looking person, but at the present he looked utterly puzzled and helpless. He was Herbert Hawes, Chief of the Bureau of Criminal Investigation, and a famous man.

Beside him on the desk, and on the



The squadron dove viciously down at the raider

floor around his chair, were arranged stack after stack of telegrams, yellow with black headings, and white with blue headings.

*"Mercy Hospital reports mysterious disappearance of radium salts during night."*

*"Entire stock of radium disappeared last night. Two attendants found unconscious!"*

*"One hundred thousand dollars worth of radium disappeared from Mt. Sinai Hospital. Nurse and doctor unconscious!"*

*"Total radium supply stolen. Locks demolished. No clues!"*

Thus ran the telegrams, all of them. They came from all of the large hospitals in the principal cities in the United States, and from numerous large University laboratories. From Bangor, Maine to Jacksonville, Florida, from Portland, Oregon, to Los Angeles, and criss-crosswise over the country, the story was the same.

"A raid on the country's supply of radium!" the chief gasped, and sank down in his chair.

The realization of the enormity of the affair grew on him by leaps and bounds.

"What a holdup!"

Now he sat at his desk with his head

**RAIDERS** come from Mars to steal Earth's radium. In desperate defense, an entire army division is wiped out. Then "Swoop" Martin, air pilot, volunteers a suicidal attack.

on his hands. There wasn't a clue. There was nothing to go on. He could think of no way to start. He sat there and worried.

He did not know how long he had been brooding there, when he slowly became aware of an insistent irritation forcing itself into his detached brain. It dawned on him that it was the telephone. He rubbed his eyes, shook himself, and grabbed the instrument.

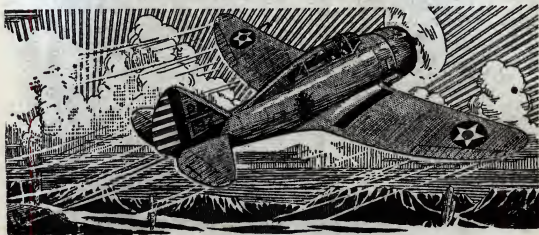
"Hello!" he said, as quickly as he could.

"Lincoln, Nebraska, calling," came through the telephone. "Is this Chief Hawes? Chief of Police Henderson, of Lincoln, wishes to speak to you."

There was a momentary silence while the connection was made, then a gruff voice spoke.

The two chiefs identified themselves to each other.

"I suppose you are investigating the disappearance of the radium," said the Police Chief from Lincoln.



Desperately Martin gunned the ship again to the blue

Chief Hawes grunted in a dubious sort of fashion. Chief Henderson from Lincoln continued:

"The accounts in the newspapers—"

Chief Hawes just now thought to look up at the clock. Three o'clock. Four hours his head had lain sunk on his desk, thinking and dozing alternately after this terrific shock had struck him.

"—the accounts in the newspapers have been most unsatisfactory, but I gather there is a serious problem on. I have what may be a clue. Do you want it?"

"Do I? Do I? Come on quick!" roared Chief Hawes, banging his desk with the other fist.

Chief Henderson continued:

"There was a young chap, just a boy, in my office yesterday, with a most fantastic tale, which now strikes me as having a possible hook-up with this thing. It was so wild, that I told him it was bosh and sent him about his business. Now that this thing has turned up, I feel that there may be something in the boy's story. We ought to look into it."

"What did he have to say?" demanded Chief Hawes.

"He had a curious tale about some inventor with heart disease communicating with Mars—; shall I send him over to you?"

"Nuts! I thought you had a clue. What d'ya want to bother me with . . ."

"Well," the Western Police Chief explained, "his story said just that: stealing radium by some guys from Mars."

"Nuts!"

"Shall I send him over?" queried Chief Henderson.

"Yes! No!" roared Hawes. "I'm coming over *there*."

**I**N one of the homes on a modest residence street in Lincoln, Nebraska, a sixteen-year old boy walked into the liv-

ing-room, where his father was reading a newspaper, and turned off the radio. By the door, at the foot of the hat-rack, a physician's emergency bag and two canvas paper-carriers' bags showed plainly that both father and son were busy men.

"Dad," the boy inquired earnestly, "Would it be a good or a bad thing for the human race if someone discovered how to make people live forever?"

"Well, well," the doctor replied. "You are being mighty serious about it. Is that for one of your debates?"

"Yes," Ronald answered eagerly; that excuse was as good as any.

"I believe," the doctor continued, "that if everlasting life were given to the human race, it would be a very bad thing. If no one died, in a population which is now stationary, it would double in one generation."

"You mean," the son reminded, "that if the birth-rate continued unchanged?"

"It would," the doctor assured him. "No ifs are needed. You can fancy, after a few generations, the horrible crowding up of the earth. Think of the pressure, the competition, the lowered standard of living, worse than anything in India or China—and growing worse and no end to it."

"But supposing," suggested Ronald, "that birth-control were put into effect?"

"Don't make me laugh," his father countered. "Voluntarily or individually, people would never do anything. By public measures, perhaps in a hundred years after everybody was crazy, something might be done. No, I rather think your gift of everlasting life would be no boon to race, and of questionable benefit to the individual."

As the boy said nothing further, the doctor resumed his reading. At intervals however, he glanced over the top of his paper at his son, who sat there

motionless in a stiff chair, staring straight ahead of him and saying nothing. Undoubtedly something was preying on his mind. The doctor, a practical man who knew boys well, said nothing, realizing that it would all eventually come out.

The boy maintained his puzzled posture for nearly two hours before he stirred. Then he rose, stretched himself, and remarked that he hated to go to bed.

At that moment there was a gallop of many footsteps on the porch floor, and a ring at the doorbell. In a moment the room was filled with Chiefs of Police and Government officers.

"THERE used to be a light in old man Dragstedt's window every morning at 4:30," Ronald began his explanation, "when I passed his house carrying papers. I knew he was a sickly old man who never went anywhere, and lived alone. Sometimes one of the windows went funny colors in the night, as I went by with my paper-bags. He's got a crazy chimney on his house, like a tall pipe, and shiny, like polished metal.

"Although it is against the rules of the paper, one morning I couldn't resist trying a peek in at one of his windows. I tiptoed up on the porch, but the minute I stepped on his rug, an alarm went off somewhere in the house. The door opened, and he started to roar at me, and then collapsed on the floor. He has heart disease, and gets attacks when he gets sore.

"I dragged him to the davenport and was going to call up my dad, but he begged me not to. He had some pills that he took. I got them for him and they made him better in half an hour. I stayed with him and warmed him a glass of milk. I saw nothing in the house out of the way, but in the direction of the queerly lighted windows

there was a closed door.

"The next day I walked boldly up and knocked on the door. He had me in and I asked him how he was. I got to dropping in that way and found that he was grateful for a lot of little things I could do to help him. But, he never opened that door.

"I thought I would never find out what was in there, until one day when I rang his doorbell and he didn't answer. I opened up and went in, fearing that something had happened to him. I found the secret door open, and he was just about to come in through it, when he had another spell. He fell down and his face was so blue it gave me the creeps. I got him to bed, gave him his tablet, and had a look at the room.

"A lot of the stuff there was undoubtedly short-wave equipment. I've got a ham station of my own, and am up on it. The scanning elements and the big screen of a television set were also familiar. But there was an awful pile of strange stuff there that meant nothing to me.

"He came to as I was standing in the middle of the apparatus room, looking around, trying to figure out stuff. He didn't get sore; he got to know that it would give him another spell with his heart. So I just shut the door, warmed him some more milk, and never said a word and he didn't either.

"But after that he let me come in and watch him working at the apparatus. He used *cw*, but he had six keys instead of one; he played five of them with the fingers of his right hand like piano keys; it must have taken a lot of practice to get that way, because he really made 'em sing. Another odd thing was that his transmission wave had several tones to it—no; he must have had several transmission waves. It gave a musical effect as he sent."

"Say!" interrupted Chief Henderson,

"where is this old bird? Dragstedt you say? We'll listen to the rest of it from him."

"Well, I guess he's gone to them. Or they took him away with them. He hasn't been at his house for 24 hours. But his stuff is all right."

"What do you mean by *they*? Who took him away?"

The boy showed embarrassment.

"Well," he hesitated; "I know you'll think I'm crazy—"

"Suppose you are!" said the police chief, his voice rough with impatience. "Who took him away?"

"Well—the Martians. But wait till I get to 'em."

THE men settled in their chairs with a certain amount of relief. Martians! If that was all, they needn't worry. They had thought it might be some well-known crooks. The boy continued his narrative:

"Then one day, when he didn't come to the doorbell, I opened the door again and walked on in. The inner door was open. I could see him at the television apparatus. I really saw a Martian on the screen!

"I saw him plenty plain and had a long time to look at him. Dragstedt was so absorbed that he didn't know I was there for thirty minutes.

"The thing on the screen moved, and worked little pieces of a vast stack of machinery behind it. It had bright eyes, and arms and legs, and wasn't so very different from people after all. But for a person, it looked small and fragile and easy to fall to pieces. It moved with quick jerks. As it moved, little buzzes on different notes came out of Dragstedt's machine. It gestured with its hands, and then brought out papers. Or, you know, whatever they use for papers. But it looked just like papers. Some had maps and some had mathe-

matical stuff on them.

"Then Dragstedt turned around and saw that I had been watching him. He came near having another spell. But, he's a smart guy, and he calmed down and held it off. He decided he might as well tell me about it. I understand the stuff pretty well and can give you the high spots—"

"Whatever Ronald says about radio and related subjects," his father interrupted, turning to the police officers, "you can put down as being accurate and dependable. I myself am amazed at the amount of knowledge he has on those things."

"Kids are hot on that stuff," the grizzled old D. C. I. chief mumbled to himself.

"He had been a professor of physics," Ronald went on. "But he inherited a lot of dough from a relative and got to experimenting on his own. He was interested in picking up the portion of radio waves that are reflected from the Heaviside layer. He had some odd notion about the thing and was measuring intensities. He found that the reflected portion was weaker than the transmitted portion to an extent not explained by the square of the distance equation. He tried it with direction beams, and the more nearly vertical he got his beams, the greater the loss in intensity—just opposite to what you'd expect—"

Chief Hawes grunted and mumbled something about what he would expect.

"When he finally directed a successfully controlled beam in an accurately vertical direction, he lost most of his short-wave energy. Can't you see—that he was putting a wave *through* the Heaviside layer?"

Chief Hawes grunted again, so that Donald had to smile.

"He played with it a lot, and sent out a lot of amateur broadcasting, and *cw*.

It wasn't really very long, a few weeks, till he was amazed to find that he was getting signals in return. The poor fellow must have gone nearly crazy before he figured out what those odd, broken tones were.

"FOR many months he worked on them, but could make no sense out of them. After quite a while, it struck him that he ought to build a television apparatus in connection. By that time his heart was getting bad; he went to a doctor and the doctor wanted to put him in a hospital. He couldn't stand that, and went back to his apparatus. After some weary months he finally saw his first Martian on the screen.

"Eventually he learned to talk to them. By means of the vision screen and his multitoned *cw*, he and the Martians developed a language from gestures and pointing to objects, and then gradually into words. I got on to a good deal of the stuff myself as I watched him, and it isn't so hard at that. When I got so that I could stand there and get what the *cw* was saying, I got quite a thrill out of it.

"Well, it turned out that these Martians lived under the ground on their planet, because it was too cold and dry on top and no air. They had it all fixed livable underground. They were an old, old race, much older than ours. They had learned among other things, the secret of preventing death, or at least of putting it off indefinitely. As their births were regulated in the laboratory merely to replace rare losses by death, the race was stable.

"However, within the recent century, a new disease had sprung up among them which they could not conquer with all their science. Deaths occurred in such numbers that the laboratories could not replace them by a sufficient number of births; their mathematicians

predicted the early extinction of the race. Their physicists said that the disease was due to the complete loss of radioactive minerals, due to the old age of the planet itself. I saw some of the sick ones on the television screen, and it must have been some kind of cancer.

"What did Dragstedt do, but describe radium to them, and ask them if they knew what it was, and if they thought it would cure their stuff. Of course that is the first thing that would have occurred to me. No; all their radium had finally broken itself up into non-radioactive elements. But they grasped the idea, only too promptly.

"The gist of it is, that Dragstedt and the Martians got up a scheme, where he is to steer them to the caches of radium when they come to Earth in a space ship. In return, they will cure his heart disease and give him everlasting life. Dragstedt has been all over the country, getting the layouts of hospitals and universities, which he could easily do, for he is a well known physicist himself.

"Those birds up there on Mars even planned mechanical things to get around in, when they got to Earth, because their bodies are too flimsily built for our heavier gravitation.

"That's all I know, except that I overheard that their ship is down in the sandhills, about fifty miles southeast of Alliance; and that they are sticking around about a week to treat old Dragstedt."

## CHAPTER II

### The Martian Ship

BY the next morning, the entire Eighth Army Corps was on the move, swarming from all directions toward Alliance, Nebraska. Its airplanes, and also two squadrons of Navy hydroplanes from the Great Lakes Training Station, were at Alliance by daybreak.

Field artillery and tanks on flat-cars came in on the railroads from the East, West, and South. From four directions came trucks loaded with men and small equipment.

By noon, Alliance looked like the center of a war zone. The sky hummed with planes. Tanks clanked along the roads, and motorized artillery pointed its long, keen noses at the sky. Trim, khaki-clad detachments clicked precisely along the pavements, their rifle-barrels all neatly parallel. The entire division was mobilized. It was being strung out in a new-moon shaped line, thickest in the center, and the points feeling outward, to surround the object as soon as it was found.

The airplanes located it early in the afternoon. It was described as an egg-shaped affair as big as an ocean-liner, located in a hollow in the sand hills, practically where Ronald Worth had predicted it would be found.

The young captain in command of the airplane squadron from the Great Lakes Navy Base, saluted General Barry, the Commander of the expedition, and stood in front of him waiting for orders. He could not conceal a restlessness, stepping from one foot to the other, even though trying hard to stand rigid.

The grizzled old General smiled.

"What is the Captain jittery about?" he asked.

"Begging the General's pardon," the Captain said in embarrassment, "I am awaiting orders to bomb the space-ship. It is just a pippin of a target. We could smash it in thirty seconds—"

"What about the radium?" the General interrupted.

The Captain's face suddenly fell, and he stood there puzzled.

"Do you know," the General continued, "that the entire nation's supply of radium is inside that vessel. If you

throw explosives down there, you will scatter several million dollars' worth of precious stuff out in the sand. It would cost as much money and take as much time to recover it, as it did to make it in the first place."

"Yes, Sir!" replied the Captain meekly. "We've got a job on hand!"

**I**N the modest residence section of Lincoln, Nebraska, three swift cars that had just dashed across the town from the airport, drew up in front of Dragstedt's deserted little house. General Barry, his aides, and a squad of guards tramped into the house.

There, in the room of apparatus which old Dragstedt had built, sat Ronald Worth, high-school student and paper-carrier. Sleepiness showed in his eyes, and at his elbow were partly consumed bottles of milk and plates of cheese and crackers.

"Ronald Worth calling Professor Dragstedt! Ronald Worth calling Professor Dragstedt! Will you please answer! It will be to your interest to communicate with us!"

The boy's voice droned monotonously on, uninterrupted by the entry of the men into the room. Then he stopped, took a drink of milk, and put his hand on the six keys. The queer musical drone started and whined monotonously on. The military men stood silently about the room.

"You are sure that no other operator could take this over?" General Barry asked.

"I'd have to teach him. It would take time. Took me months to get on to it," the boy answered. "This is different from ordinary radios. And common radios won't tune with those of the Martians."

"You look tired," the General said.

Suddenly the boy stiffened, and took his hand away from the keys. The mu-

sical drone continued, in a different rhythm.

"He is answering. Wouldn't answer on the telephone, but bit on the *cw* at once." Ronald was elated.

"Tell him," said General Barry, "to tell these Martians, that if they give us back our radium, we shall treat them royally, entertain them, show them the Earth; and then let them go home unharmed, with a gift of enough radium for their purpose."

The *cw* transmitter hummed awhile; and there were stirs of impatience among the soldiers who filled the room. After a while, the boy spoke again.

"The best I can make out of these answers, Sir," he said, "is that the Martians refuse to recognize us as intelligent beings. They refuse to deal with us. They think we are just some sort of animals."

"You tell him, then," the General directed, "that we have got them surrounded on land and in the air. We shall not permit them to rise, and shall simply lay siege to them until they starve. Do not be alarmed when we put a small shell through the skin of their vessel; that will be to keep them from rising out into space. Advise them again, that they will be better off if they surrender."

The *cw* spoke again for a period; and again the boy spoke, with some excitement in his voice:

"Apparently the shell has arrived, and blown a hole in the nose of their ship. Dragstedt didn't think it did any damage. But the Martians have become very busy about something, moving jerkily about. The shell-hole seems to have interfered with their arrangements for decreased gravitation inside the vessel. He doesn't know how many there are, but over a hundred. He says they are disturbed."

"That was Grigsby of the 110th

Field Artillery that disturbed them."

"SWOOP" Martin, the crack observation pilot, circled around over the scene of operations, at 30,000 feet. He had to use an oxygen helmet, fitted with binocular glasses. But he was invisible and inaudible from below.

He could see the gleaming, egg-shaped hull, nestling in the sand like some child's toy; and around it, the dotted, splotched, irregular circle formed by the Eighth Army Corps. As he watched, a puff of smoke came from one of the splotches below; in a moment a puff of smoke appeared at the smaller end of the egg; and when it cleared, a small black hole remained in the metal. He reported it all promptly to headquarters by radio.

The next thing that happened was that a square of metal opened in the side of the vessel, like a door, and an odd thing stepped out of it, and started walking out across the sand away from the ship.

In another second, a dozen airplanes, far below him, swooped down toward the thing. The faint patter of their machine-guns came up to him. The mechanical thing that had come out of the vessel careened over on its side and lay still. The door in the side of the hull quickly closed.

For some minutes nothing happened, and then a row of little round ports appeared higher up off the ground. "Swoop" Martin could not see anything else happen, except that there were a dozen loud explosions, with flashes of fire in the air, and the airplanes which had fusilladed the Martian coming out of his ship, all exploded there beneath him, and only a litter of small fragments dropped on down to the ground. Then, systematically down there in that investing circle, one battery after another blew up in a flash and a cloud of



smoke, huge gun barrels and artillery wheels flying high in the air, mingled with the bodies of men, whirling down to be buried in a cloud of sand.

A few seconds later there were scores of explosions in the air, as distant airplanes blew up. There must have been communication from them to the ground, because some of the batteries in the second and third lines banged loudly two or three times before they finally blew up. Their marksmanship was good. Shells shrieked across the interval and huge holes were ripped in the shining side of the Martian vessel.

However, the Martians were the swifter. Before vital damage had been done to their vessel, there was not a tank, not a field gun, not an intact infantry company left. The Eighth Army Corps had been wiped out and was represented only by a few stragglers staggering in the sand.

"God!" exclaimed "Swoop" Martin, up in his plane above range of the damage. "All of that to pay for a couple of ounces of radium!"

As he circled around to head for safer regions, he could see repair proceeding rapidly in the holes in the side of the Martian vessel.

**A**IRPLANES from the Tenth Army Corps Area were on the spot in the morning, practically hitting their "ceiling" in order to keep out of the way of the Martians' destructive reach. They had expected to arrive and find the thing gone. But it was still there, and the shell-holes all repaired.

So, the Tenth Division moved up to fill the place of the Eighth. A few scouts first took their posts. As nothing happened, more and more men trickled in, and were slowly followed by heavy equipment. In a few days the line was again complete, among the blackened ruins of their predecessors.

Their orders were:

"Surround the Martians. Keep quiet. Take no action against them unless they try to rise."

Now, those men who had filtered up to their positions at night with pounding hearts, expecting to be suddenly wiped out at any moment, were getting tired of week after week of inactivity. Army discipline, always irksome, was doubly so in the heat and the sand. There was sand in their clothes, sand in their hair, sand in their ears, sand in their food. There were hot winds, and nothing to do but wait all day and wonder what the airplanes above had to report. The enlisted personnel were not the only ones who were restless. There were constant, worried conferences in the General Headquarters tent.

"I have an idea!" exclaimed General Johnson, Commander of the Tenth Army Corps, one hot day, when weariness was at its height.

The headquarters staff deliberated long and carefully before the officers finally dispersed, each to his own sandy quarters. There was much tapping of the Royal Portable typewriter and sealing of secret orders during the next few days. There was code communication with Washington by radio.

Finally, one dark night, the men were overjoyed by orders to get up and move. A few moments later they were dismayed to find that their progress was going to be backwards. They were going away from the enemy. They pounded through the sand until they reached a paved highway, and were then whisked away by trucks. By daybreak the Division was comfortably making camp in a country that was not sand-hills. Eventually it was discovered that the little city in the distance was Ravenna.

"Swoop" Martin, transferred to the Tenth Division, saluted General John-

son, as the latter stepped out of his car.

"Ready for orders, Sir," he said.

"Lieutenant Martin, there are no orders. You may do this if you care to volunteer, but you will not be ordered to do it."

"Instructions, I meant, Sir," said "Swoop" Martin.

In a few moments he was on the run for his plane, which stood ready for him.

### CHAPTER III

#### The Attack on the Martians

"SWOOP" MARTIN in his monoplane made circles around over the Martian space-ship like a hawk. He swept around lower and lower. At a height of about 3,000 feet, he flew away to the distance of a half mile, and then dived steeply downward, toward the Martian vessel. A few hundred feet above it, he turned sharply upward again, making a sort of V. At the bottom of the V, a small black object left the scout plane, and described a parabola, striking the Martian vessel amidships. A ragged hole appeared, and then a dull explosion.

"Swoop" Martin was climbing fast, and thinking every moment was his last one; expecting to be blown to atoms any second. But until he was, he determined, he would go through with it. He guided his plane, watched his board, and went steeply upwards.

Finally, when he was gasping for breath, he leveled off, and put on his oxygen mask. He looked down below. Everything was the same as before. He was puzzled.

He cruised around awhile, thinking things over, and shook his head. He swiftly reported what had happened and asked for further orders. The General's message was to the effect that he did not wish to give an order of that

kind; but that if Lieutenant Martin wished to volunteer to repeat his maneuver, it might be a good idea.

Down, down, the plane swooped again, toward the tiny globule nestling in the sand, and sent another bomb hurtling down from the front of its V-shaped path, and again fled upwards into the heights. Again a jagged hole was torn in the top of the space ship; again "Swoop" Martin expected the worst as he climbed his way back to the height; again he waited in vain for something to happen, and nothing happened.

Back at the camp near Ravenna, a group of men stirred. In fifteen minutes, a dozen swift cars filled with officers and men, two high speed tanks, and two high-speed four-inch field-pieces, were headed toward the Martian ship. They covered the ground rapidly, and by noon were on the site of the previous camp from which they had besieged the Martian vessel. The field-guns were set up and trained; a dozen men climbed into the two tanks, loaded with machine guns and hand-grenades. Above, a dozen airplanes droned, and made swooping circles, much like hawks.

The tanks started off, throwing up clouds of sand, and dashed at high speed, straight toward the shining side of the Martian vessel. Their crews were tense, expecting to be blotted out instantly. But nothing happened. The old General sat at the front porthole of one of the tanks, watching ahead, gazing at the narrowing space between the tank and the Martian ship. Those gleaming walls began to seem very close, and the General expected the catastrophe any moment. But they roared and clanked onward, and still nothing happened. The airplanes came lower, till the roar of their motors was heard above the noise of the tanks. Still nothing happened. Behind, the men at the

cannons watched through field glasses and waited at their radios, ready to rain a shower of shells on the Martian vessel at the least suspicion. But nothing happened.

Finally, they were under the very lee of the metal hulk. It towered above them like a skyscraper, and extended in both directions like a mountain range. Still nothing happened.

"All out!" the General ordered, as the tanks stopped.

Their feet crunching in the sand, their hands full of grenades, they made their way slowly alongside the ship. One hundred yards. Two hundred yards, three hundred yards, they walked along, and still there appeared no way of getting inside. The holes that "Swoop" Martin had made were on the upper surface, and there was no way to climb.

"Try a grenade," the General ordered.

They all backed off. There was a crash of flying fragments, but no damage to the wall.

"A four-inch shell, then!"

The only communication with the gunners was now by flags. The General's order was rapidly wig-wagged to them. The General and his men hurried to shelter behind a sand hummock, now genuinely expecting complete annihilation. The gun crew placed the first shot too short and merely threw up sand. The second was a little high, tearing open the metal plates of the hull about twenty feet above the ground. The third shot ripped open a hole that they could easily walk into.

FOR a moment the General contemplated with interest the twisted and blackened edges of the shiny, white metal that was unknown to him. Then he recollected that they were in danger, he and his little group of men, peering into the depths of the dark opening.

There was some huge machinery visible, a long corridor with a bright, flat surface at the end of it. Nothing had as yet happened to them. They were still alive.

The General pushed back one of the men who was edging into the opening. He claimed the privilege of being the first to walk into danger. The men with grenades and hand-machine guns crowded behind him. The General found himself walking down a small corridor, and the men filed behind him. The corridor soon became a bridge out in a vast void, black and filled with machinery of enormous proportions. Then again it became a corridor, and the bright surface was a wall turning at right angles.

It seemed that they spent hours walking about with pounding hearts and thumping heads, expecting every moment to be attacked in some unknown way from dark ambush. There was endless machinery, large and small, everywhere.

Finally, at the end of a climb up a long stairway, they came to an open space, at what they guessed to be about the middle of the ship. It looked as though they had found the "living quarters" at last. They were in a vestibule. In front of them was a metal door with a glass window, through which they could look into a vast, ovoid, rotunda-like room or hall.

All efforts to open the door failed. There seemed to be no lock against which to direct operations. The metal of the door was firm as a mountain against all their blows. So, they all stepped back, and a well-aimed grenade tore the door open wide enough for them to go through, their ears singing from the roar of the explosion. They went through cautiously, two experienced enlisted-men first, with their rifles at ready, then the officers with their pis-

tols in their hands.

The lighting seemed to them rather dim, though it had the quality of daylight. Probably it corresponded to the lower intensity of illumination as found on the surface of Mars.

"Crash!" went the rifle of a soldier at something that moved slightly on a couch across the room, a hundred yards away. Whatever it was that had moved, jerked as though it had been kicked, shuddered a moment, and lay still.

The group stood huddled together near the door, looked around and waited. Not a sound, not a stir in the vast room. It had all the proportions of some huge Coliseum, though none of the ponderous evidences of construction difficulties. They had time to examine the place. About two hundred cots or couches stood around its walls. It appeared that originally they had been arranged in precise order, but now there was confusion. All of them were occupied by little, shriveled, flat-looking bodies, that looked astonishingly human. They were small and frail-looking. On closer inspection they looked especially human because the faces were so very old and sad. The skin was blue, leathery, and wrinkled.

In the middle of the place was a cluster of some kind of apparatus: a foundation-pillar, a platform, elongated, casing-like structures of metal pointing in all directions like telescopes or projectors, wheels, knobs, and levers for control. It may possibly have been the control station for running the ship. Near one end of the space into which they were looking, three or four of the mechanical contrivances in which these creatures traveled around when they were on earth, lay propped up in a heap, and a motionless body was still strapped in one of them.

"All beds occupied but one, sir!" the veteran Sergeant said; "and that must

belong to him," pointing to the one in the machine. "Not one of them is stirring."

"Just the same," the wary old General said, "the four of you go around and prod everyone of them to see if there is any life left. This is no time to get shot from behind."

A keen-looking officer with a lieutenant-colonel's leaves on his shoulders, was also looking the bodies over. They were indeed all dead. He walked up to one and another, and even thumped and prodded several with professional skill and interest. The General watched him in mute inquiry.

"Well, doctor," he finally asked, "what killed them?"

"Radiation!" the medical officer replied. "As I see it, they had developed no natural protection against radiation because they live under-ground, and because there is so little radiation of any kind on Mars, both because of its distance from the sun and because of the scarcity of its radioactive minerals. Apparently there was no warning in their mathematics, of the terrific power of radium against their own flesh, even through the lead walls of its containers. See the deep destruction of skin and tissue on some of the older cases."

THE General stood a moment, lost in thought. Then he sent two men back to the main force with orders that proper guards be brought up for the Martian ship.

"Now we'll look for the radium," he said. "It can't be far from here."

The men stuck close together as they moved here and there. It was a jittery place. The vastness and dimness of it, the two-hundred odd dead Martians, the jungles of incredibly huge machinery filling the great spaces all around them, between them and honest daylight, with God only knew what lurk-

ing in their depths, were conditions to which they were unaccustomed. They would have preferred a concrete human enemy in front of them no matter how well armed. They went to one of the doors that were let into the wall at intervals, then to another, then to several in succession.

The doors were of the same character as the first one they had encountered. There seemed no way to open them except by explosives, and this for the present they hesitated to do. The light from the rotunda penetrated the glass windows of the doors only a short distance, and was lost among the huge bulks and dizzy reaches of machinery.

Suddenly a harsh cackle sounded behind them.

They wheeled around and stood petrified, the enlisted men with their rifles automatically aimed in the direction from which the laugh had come.

"Ha! ha! ha! ha!" rasped a harsh, dry laugh. "Go ahead and have a shot at me boys, and see how much harm it does!"

They saw Dragstedt standing there his eyes gleaming.

There was a moment's pause. The General whispered:

"He's insane."

"Who wouldn't be?" the medical officer said.

The madman's dry cackle rose again to the lofty ceiling:

"Ha! ha! So you think you can get the best of me, eh? Look what I can do to you!"

He whirled a little wheel, which slowly swung one of the long casings so that it pointed at a dead Martian on a couch. He moved his hand to something else, and an intense red ray shot across the intervening space. The Martian and his bed simply flew into pieces, and the fragments also disappeared, leaving behind them faint clouds of

smoky vapor. A dull thud shook the room.

"Look! and look! and look!" the madman shouted excitedly, aiming at one after another of the Martians, blowing them into smoke with red streaks and dull thuds.

Crash! went a soldier's rifle as the ray began to swing too close to them.

The soldier dropped his rifle in one hand, and held the other to his head as though to nurse a headache.

"Swipe me! I could hit a pinhead at that distance!" he moaned.

"Fire at him again!" the General ordered. They all watched closely.

Crash! went the rifle. At the same time a small puff of smoke appeared in the thin air about a foot from Professor Dragstedt, and in line with his heart. The bullet had been caught and disintegrated by some field of force.

Again the long, cackling laugh:

"You see, I've got you!"

"Yes," said the General. "What do you want?"

"I'm sailing this ship to Mars," the Professor said. "I'm going to sell them the radium there. I'm going to be rich. I'm going to get power! I'm going to rule. I'll be the biggest—"

"But what about us?" the General interrupted.

The madman's face became crafty.

"You will come with me, and be my royal Guard," he orated. "Or—" he waited thoughtfully a moment as though a new and more interesting idea had struck him—

"—or, I'll blast you into smoke. What would you rather do? Go to Mars, or get flashed into nothing?"

Someone in the group whispered:

"But the ship's got holes in it. If he goes out into space, we're all goners in a few seconds."

Another voice whispered:

"Does he really believe he can handle

this ship? And get it to Mars? Looks complicated to me, and I'm—"

The old General's head probably worked faster than anyone else's.

"You go to hell!" he thundered to the mad professor. "We'll get you yet, and court-martial you and shoot you."

Professor Dragstedt gave a shrill yell.

"Whoopee! All aboard for Mars! Here we go!"

He adjusted a number of little wheels, lumbered all the casings into different positions, and took hold of a large, heavy lever.

The men looked at each other blankly. In a few seconds the cold of space would penetrate into their bone marrow, and all the air out of their

bodies would be lost as an infinitesimal whiff in the limitless void. Irresistibly they turned to Dragstedt again.

With a wild grin on his face, he leaned back, and gave a long, hard pull at the heavy lever in front of him.

Suddenly they were pressed to the floor with an immense weight. The sensation was over in a second. During that second the spectacle in front of them took place. A fountain of a dozen streams of red beams played for an instant at steep angles, crisscrossing each other and forming a hyperboloid. When they subsided, the tower in the middle of the room was a molten mass, and the only trace of Professor Dragstedt was a whiff of smoky vapor, slowly dissipating itself in faint swirls.

### DO INSECTS THINK?

This is a question that has been often asked by those who have chanced to observe the apparently intelligent actions of a colony of bees, or of ants, or of wasps. And it is one that deserves deep consideration.

Among the higher invertebrates, namely the bees, ants, wasps and other social insects, there is a complex behavior which has been interpreted by some to imply a consciousness comparable with that of man. Others have emphasized the instinctive character of the activities of these insects and have been content to consider the higher insects as mere automata.

The insects represent a line of development divergent from the course of evolution that has culminated in man, and it is difficult to compare the insect mind with human consciousness. Either the performances of bees and ants are largely reflex or must be attributed to a very complex effective consciousness.

Whatever it is, it is perhaps most safe to say that the process is anything but human in character. Size of brain seems to have been very important in man, and from the lowest forms of life to the highest, brain size has increased. Therefore, judging from the tiny size of the insect brain, it cannot be ranked very high in the ability to think.

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# Valley Of

Invisible men fought beside him as Mark Bradford battled to defend the Shining God from an unscrupulous Baltic agent.

## CHAPTER I

### In the Hidden Land

**M**ARK BRADFORD ducked his head and threw up his arm to protect his eyes, as his big amphibian airplane dived toward the jungle-covered plateau.

*Crash!* With a rending of metal and splintering of branches, the ship smacked down into the brush-covered clearing he had chosen for his forced landing.

Then all was silent.

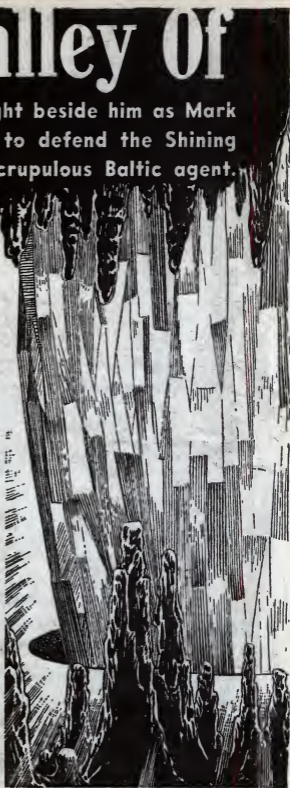
Mark groggily unfastened his safety belt, and clambered unsteadily out of the wrecked ship.

His dark, virile, strong-chinned face tightened and his black eyes narrowed as he surveyed the wreck.

"Well, I've reached the plateau of the Shining God, anyway," he told himself grimly. "But it's going to be a long eight-hundred mile walk back through the jungle."

His chunky, muscular khaki figure turned as he slowly surveyed the scene about him.

Huge trees, silk-cotton and jagua and jupati, rose around this brushy clearing. Through the trees, back a half mile to the north, he could glimpse the



# Invisible Men

By EDMOND HAMILTON



R. Fuqua

Mart Bradford staggered, feeling a weak giddiness that invaded his brain



rim of this plateau on which he had landed. Beyond and below the rim of the great plateau lay the solid green Brazilian jungle. Eight hundred miles of that jungle, between him and civilization!

For these were the unexplored jungles of the Matto Grosso, the unknown heart of wildest Brazil, the greatest blank spot left upon the maps of earth. For twenty hours he had been flying over that jungle, searching for this plateau. And he had found the plateau—just as his gas had run out!

Mark gazed southward, toward the center of the great plateau. Through the trees, he glimpsed a great blue lake, flashing in the sun. It was miles away, and the whole surface of the plateau appeared to slope gently down toward it.

He made out an island in the distant lake, a small mass of land that rose to a steep black peak. And he thought he could discern black structures of some kind on the lake's western shore.

"Goodbye, pal," he muttered to the wrecked airplane. "You brought me here—it's up to me, now, to get the Shining God and get out of here."

Rapidly he fished a revolver belt, a sun helmet, and a small pack out of the wrecked ship. Then he started on a steady tramp southward through the forest, toward the remote lake.

"At least," he told himself with grim satisfaction, "I seem to have beaten Hogrim and the others here. And that's good."

**M**ARK BRADFORD was an agent of the United States War Department. And he had come into these unexplored Brazilian wilds, had sought out this mysterious plateau, to search for a tremendous secret.

The secret of *invisibility!*

A year before, an over-daring Amer-

ican prospector, a Francis Trask, had gone into this unknown region. Months later, Trask had floated in his canoe down the Tapajos to a trading post, dying of wounds, babbling deliriously of an incredible secret upon a mysterious plateau in the far interior.

"The Shining God!" Trask had raved as he died. "The Shining God that can make any matter invisible!"

Trask had died. But in his back, in a half-healed wound, had been found a thing that partly corroborated his ravings.

It was an invisible arrowhead. A copper arrowhead that had been somehow treated so that it was perfectly transparent to light, was absolutely invisible to the human eye. But it hadn't remained that way. It had gradually become opaque.

However, did the secret of invisibility, a secret that would make any country's armies and navies invincible, exist somewhere in the wilderness? It seemed possible. American defense chiefs had thought it possible—and had sent Mark Bradford to get that secret.

Mark had known that the agents of other countries were ahead of him, also seeking the invaluable secret. The Baltic Empire, that brutal, dictator-ruled land that had menaced the world's democracies for the last few years, had sent its renowned spy-chief, Joseph Hogrim.

Hogrim and the agents of other European nations had had a head start—for news of Trask's discovery had been sent first to Europe. Mark Bradford had tried to overcome their start on him by using an airplane in a desperately risky attempt to reach the plateau ahead of them. He had flown straight into the uncharted wilderness, had searched until he found the plateau. But by the time he found it, his gaso-

line was exhausted.

Mark's dark, dynamic face was set in lines of grimmest determination as he slogged southward through the jungle now. If the Shining God, the secret of invisibility, actually existed here, he'd get it somehow—for America.

The jungle was silent around him, except for monkeys and parrots screeching through the high treetops. Hordes of pium and zancudo flies viciously attacked him. Sweat dripped from his face as he pushed resolutely toward the great lake.

He finally reached the strip of sandy beach between the jungle and the water. The blue, heaving surface stretched in front of him for a dozen miles. The island in the middle of the lake was half that far away from him, its steep black peak rising like a man-made monument.

Mark stooped in the sand and drank of the clear water. He was straightening up, when he froze rigid.

He was witnessing an incredible thing.

**A** LONG the sandy strip of beach, a jaguar was coming toward him. He could see clearly the imprints of its big cat-paws in the sand, as it stealthily approached.

But he couldn't see the beast that made those advancing paw-prints! A creature he couldn't see, a jaguar that was totally invisible, was stalking him!

Mark Bradford stared, transfixed. He saw the paw-prints of the invisible beast halt and deepen, a few yards away. He knew the jaguar was gathering itself to spring—

Then something flashed out of the jungle, through the air toward the invisible beast. It was a large rope net, that had been cast so that it settled unerringly around the unseen animal.

Instantly the invisible jaguar ut-

tered a terrific, vibrating roar. It sought to free itself of the net but its wild efforts only enmeshed it more deeply. To Mark's stunned gaze, it was as though the rope net was bunching and tangling and squirming with life of its own.

"An invisible animal?" muttered Mark hoarsely, staring with sweat-glistening dark face wild.

A sudden surge of elation pumped exultantly through his blood.

"Then there *is* a secret of invisibility here! I've found the country of the Shining God!"

At that moment, something sharp and pointed prodded his back.

Mark Bradford broke from the spell-bound trance that had held him, and whirled around.

A dozen tall, brown-faced warriors in copper helmets and breastplates stood facing him, a few feet away. They had cast the net that had trapped the invisible jaguar, and then had slipped around silently onto the dazed young American.

These warriors had fierce, aquiline features, but they were not Indians. Their helmets and armor betokened a state of semi-civilization. They carried big bows, and on each bowstring was an arrow, pointed at Mark's heart.

One of them who appeared to be a captain wore a plume of brilliant feathers on his copper helmet, and carried a long copper sword with whose point he had pricked Mark's back.

He spoke harshly to Mark. The American stared. The man was speaking in Quichuan, that ancient language that was used over half South America, long before white men came.

"What do you here in the land of Krim, white stranger?" the captain demanded menacingly.

Mark gathered his dazed faculties. The pointing arrows showed him the

deadly peril in which he stood.

"I came from outside this plateau," he said in Quichuan. "I was drinking here, when that invisible beast approached me—"

Mark Bradford, as he spoke, unobtrusively grasped the butt of his revolver. The fierce black eyes of the plumed captain saw the movement.

"Drop that thing," he ordered harshly.

Mark hesitated. But a dozen arrows poised on taut bowstrings, ready to flash into him. He couldn't escape them.

Slowly he let the revolver fall. He wondered how this barbaric warrior knew that it was a weapon.

"I am Juss, captain in the army of Groro, the king of Krim," the captain was saying. His fierce eyes slitted as he asked suddenly, "Did you come to this land of Krim to seek for the Shining God?"

Mark felt renewed elation. He was right—this was where Trask had found the Shining God, the thing that could make any matter invisible.

But Mark masked his elation. The Shining God was probably a sacred thing to these people, whatever it was. He must proceed carefully.

"No, I know nothing of any Shining God," he answered. "I am in this land only because I was lost and wandered here."

"I think you lie," said the captain Juss savagely. "You shall go with us to the city Krim, where the king Groro shall judge you."

He turned to his fierce, watchful warriors and spoke to four of them in rapid Quichuan, pointing as he spoke toward the invisible jaguar that was still threshing and snarling furiously in the meshes of the net.

"Bring the beast," Juss ordered them. "The rest of us return to Krim

at once, with this captive."

Then he pointed south along the lake shore with his copper sword. "March!" he ordered Mark harshly.

Mark Bradford knew it was death to disobey the command. And he didn't want to disobey. The Shining God, the great secret, probably lay in that city Krim they talked of.

So he moved on along the narrow beach. The captain Juss himself led the way, and eight of his copper-armored men followed, on either side of the American, arrows on their bowstrings ready to shoot him down. The other four warriors had remained behind, were gingerly approaching the trapped, invisible jaguar.

FOR almost an hour, Mark and his escort followed the narrow strip of beach between the jungle and lake. Far out to their left in the blue water brooded the steep black island. And miles ahead lay the black city Mark had glimpsed on the shore.

The city Krim's black mass covered several square miles, and abutted directly on the lake. Its high sea-wall was broken at one place by stone docks fringed with moored canoes. On the land side of the city, cultivated fields and pastures for grazing herds had been hacked from the solid jungle.

Krim was a *monolithic* city! A huge mass of solid black rock outcropped here by the lake edge, and the solid stone had been carved long ago by incalculable labor into several thousand buildings of one or two stories, with flat roofs.

Two great structures dominated the black city. One was a bowl-shaped amphitheater like a small football stadium. The other was a squat tower of several stories, a brutal black monolith that frowned across the city toward the lake.

"The palace of Groro, the King,"

rasped Juss, nodding toward the black tower. "We go there."

The Krimian populace in the black streets stared wonderingly at Mark Bradford as the archers conducted him through the monolithic city.

There were thousands of the people, all brown-skinned, aquiline featured. Most were workers or peasants dressed in white linen tunics, but there were very many of the copper-armored soldiers.

Guards at the entrance of the squat monolithic palace clashed copper spears in salute as Juss and his warriors entered the building with the American. Mark found himself in a great, shadowy stone hall, a dusky audience chamber.

Groro, the ruler of Krim, sat on a dais at the end of the room, giving orders in a loud voice to two obsequious men. He was a giant of a man, bull-framed and bull-thewed. Under his copper helmet, his brutal, massive brown face lowered at Mark Bradford in a frown of surprise.

"A white stranger we took captive by the north shore of the lake, Highness!" announced Juss. "My hunting party was trailing a jaguar of the Korlu, when we found him."

"By the shore?" roared Groro, his tawny eyes glaring suddenly at Mark. "What were you doing there, stranger? Were you planning to go out to the island of the Korlu?"

Mark Bradford didn't hear him. The young American was staring rigidly at a man who stood beside Groro.

It was another white man! A stocky, fat-necked man in a khaki suit, with a coarse red face out of which little, pig-like black eyes stared surprisedly at Mark.

Then the piggish, cunning eyes filled with mirth, as the man broke into a shout of throaty laughter.

"Bradford, of the American secret service!" he exclaimed, guffawing. "I've been expecting you to turn up, for days. What detained you?"

"Joseph Hogrim!" Mark exclaimed, staring unbelievably at the stocky, mockingly grinning red face.

All Mark's hopes plummeted to earth. Hogrim, the agent of the Baltic Empire, had beaten him here to the plateau, after all. Had beaten him to the secret of invisibility!

## CHAPTER II

### Daughter of the Korlu

SICK with the feeling of defeat, Mark Bradford stared at Hogrim's mocking face, at the porcine little eyes twinkling at him in openly gloating triumph.

Hogrim, the agent of the great Baltic Empire, that ruthless dictatorship that menaced all the world! Hogrim had beaten him! The American couldn't get over it.

"It is sad, of course," mocked Hogrim, "to find yourself outwitted. But the race is to the swift, friend Bradford. I started for here a month ago, when word of the man Trask's discovery first reached my government."

"Then you have the Shining God—the secret?" Mark asked. The words seemed to stick in his throat.

"Not yet, but I soon will have, with the help of my good friend Groro," answered Joseph Hogrim.

Mark's spirits rebounded a little. If Hogrim didn't already have the secret of invisibility in his possession, there was still a chance for him—for America!

"Don't feed yourself with false hopes, though," chuckled Hogrim as he saw the flash in Mark's black eyes. "You, I fear, are not going to live very long."

Groro, the giant king of the people of Krim, was stirring restively at this

exchange in English. The bull-framed ruler spoke impatiently now, in the Quichuan.

"This new white stranger—he is not a friend of yours, then?" he demanded of Hogrim.

"No, he is an enemy, like the others," Joseph Hogrim answered quickly. "He came here to get the Shining God for himself."

Groro uttered a roar of rage and sprang to his feet, glaring furiously down at Mark Bradford.

"So you seek the Shining God for yourself?" he bellowed at the American. "Such presumption merits dreadful death. The God is not for outlanders like you—it is for us Krimians, and soon we shall possess it."

Mark began to understand a little. The Shining God, the thing that could make matter invisible, was not here in Krim. These Krimians wanted it—but didn't have it.

Where was it, then? He couldn't guess. But he did guess that Hogrim had played upon Groro's desire for the God, to make an ally of the giant barbarian king.

"That man will betray you, though he poses now as your ally," Mark Bradford rasped to the king, pointing at Joseph Hogrim. "He too seeks the God only for himself."

"Lies," said Hogrim calmly to the enraged ruler. "The lies of an enemy seeking to destroy me. You know, Highness, that I promised you my help in getting the God for yourself. I want nothing of it."

"I know that, yes," roared Groro. "And I shall devise a fitting death for this dog of a stranger who dares accuse you, my friend and ally."

The furious ruler called to the fierce-eyed captain, Juss.

"Take him down and put him with the two other outlanders and the girl,"

he roared, pointing at Mark. "Tomorrow night are the Games of the Full Moon. We shall see him die in proper fashion, then."

Joseph Hogrim guffawed as the keen sword of Juss prodded Mark away, the officer's archers following.

"You'll find friends down there to welcome you, friend Bradford!" the Baltic spy called mockingly.

**W**HAT did that mean? Mark wondered, as he was pushed across the huge audience chamber by the watchful guards.

The Krimian warriors took him through shadowy corridors, to a stair that led downward. Mark descended stone steps worn by the ages, through a darkness relieved only by an occasional beam of sunlight from some loophole window.

Down into a labyrinth of dusky passages and rooms under the palace, he went. All these stairs and walls and corridors were monolithic, carved like the whole city out of solid rock. Again Mark marveled at the tremendous labor. How could a semi-civilized race like these Krimians have achieved it?

He was halted in front of a heavy wooden door, fastened by a strong copper lock. A squat, brutal-faced warrior came along the hall and with one of the keys jangling from his belt, unlocked the door.

"See that he is well fastened, Rucho," snapped Juss to this squat jailor.

"He shall be well secured," vowed the jailor Rucho with a brutish laugh. "You will find him here with the others when you want him."

Merciless spear-points prodded Mark through the door into a dark, small and musty stone cell. His eyes could only dimly make out its interior. He perceived two men, fastened to the stone wall by chains and locked shackles on

their legs.

Mark Bradford was roughly pushed to the stone floor. The spears of Juss' warriors covered him while the squat jailor Rucho locked a shackle around his ankle. Then Juss and his men and the jailor left the dusky room.

With a grating rasp, the door was locked on the outside.

"*Dieu*, another white man!" exclaimed an astonished voice beside Mark.

"So it seems," drawled a second voice coolly. "Just who are you, old chap?"

Mark Bradford turned astonishingly in his chains. Now his eyes, accustoming themselves to the semi-darkness, made out the faces of the other two prisoners.

They were both white men. One was a trim, wiry, compact little man with sleek black hair and a neat little black mustache, his keen eyes incredulously peering at Mark.

The other shackled man was lanky and blond, with a cool, handsome face and unperturbed gray eyes. But his left leg was bound with a rude bandage clotted with dried blood, and there were lines of suffering around his eyes.

"I've seen *you* before!" Mark burst to the lanky, wounded blond man. "You're Peter Crellys, a lieutenant in the Royal Air Force! Last year at Jamaica I saw you—"

"Right the first time," drawled the Englishman. "Except that I was given leave from the R.A.F. a month ago, for special duty."

"You're the agent that England sent here to look for the Shining God!" Mark Bradford cried, his dark face tightening.

Crellys shrugged. "It's so obvious there's no use in denying it, Yank. You are an American, aren't you?"

Mark nodded bitterly. "An Ameri-

can agent sent here on the same mission as yourself." He named himself.

"Ha, that makes us *le trois mosque-taires!*" exclaimed the dapper, mustached little man. "For I, Etienne Moreau, was sent to this cursed place by France for the same reason. And that swine Hogrim had beaten me here, and he had that barbarian Groro throw me into this filthy hole, two weeks ago."

"That's my story, too," Peter Crellys told Mark ruefully. "Only I didn't reach the plateau until five days ago. I walked right into Krim, like a fool, never dreaming that Joseph Hogrim was ahead of me. But he was, and when Groro's warriors jumped me, I tried to put up a fight—and got a stab in the leg."

"Why didn't Hogrim have us all killed right away, instead of imprisoning us?" Mark wondered.

"Groro wouldn't have it," Crellys drawled. "These Krimian birds have a custom of keeping any captives until a festive affair known as the Games of the Full Moon. I gather that said captives meet a pretty sticky end then, over in that big stadium."

AT that moment Mark was unutterably startled by a soft voice that spoke out of the shadows at his side. It was a girl's voice, speaking in Quichuan.

"I do not understand your talk, Crellie," it complained. "Who is this new prisoner?"

Mark whirled around. That voice had come from right beside him. But there was no one else in the cell.

"What in the devil—" he gasped.

Crellys' pain-drawn face grinned at him.

"It's only Lua," said the Englishman.

"But there's nobody here!" Mark cried bewilderedly. "There's—"

The words froze on his lips. His

spine went cold, his hair lifted, at the thing he now perceived.

A chain and shackle hung from the stone wall beside him, and he had seen when he entered that they were empty.

But now that shackle and chain were moving!

Mark reached out a hand toward the weirdly stirring chain. His fingers touched warm, resilient flesh—invisible flesh!

He had touched a naked, rounded shoulder. As his fingers numbly moved, he felt beneath them the rough texture of primitive leather clothes.

*An invisible girl—here in chains beside him!*

"My God, this is impossible" he cried wildly. "A girl that I can't see—"

"It's Lua," Crellys repeated. "She's one of the Korlu, the invisible people."

"Invisible *people?*" ejaculated Mark Bradford.

The Englishman nodded. "There are several thousand of them, Bradford. They live out on that island in the lake. And that is where the thing we all came for lies—the Shining God."

"An invisible people—an invisible girl—Lord, it's too insane!" gasped Mark. "I still can't believe it."

His hand was still touching the warm body of the unseen girl. He could feel the smooth skin and firm muscles. As he moved exploring fingers, he found that Lua wore a short tunic, that ended halfway down her slim thighs. The garment was as invisible as the girl herself.

Stunnedly, Mark touched the unseen girl's head. He felt soft, silky hair, falling to her shoulders, bound by an unseen metal fillet. And his finger-tips brushed a low, broad forehead, a cleanly chiseled nose, soft, full lips, and a stubborn little chin.

Yet he couldn't see her at all! As far as his eyes told him, he was merely feeling the empty air. It was uncanny,

against all human experience.

"An invisible people?" Mark repeated incoherently. "It's not possible—yet at that, it's no more impossible than the invisible jaguar that stalked me on the beach."

"You met an invisible jaguar?" Lua cried quickly. "What happened to it?"

"Why, the Krimian warriors who captured me, captured it also, in a net," Mark said.

"They captured my Kuro?" cried the unseen girl wrathfully.

"Your Kuro?" Mark repeated incredulously. "Do you mean that that beast was a pet of yours?"

"Yes," affirmed Lua. "On our island, we Korlu raise the jaguars from birth, to help us defend ourselves against the warriors of Krim. And Kuro was my own jaguar, my companion and pet. He came with me to the mainland here four nights ago, when I came hither to search for my missing brother.

"I could not find my brother," the invisible girl continued, "and I fell into a pit-trap laid by the Krimians for us. When the warriors captured me and brought me here, Kuro ran away, and I hoped he could swim back to the island."

"The Krimians didn't kill him, they only captured him," Mark consoled her. But Lua's voice was sad.

"They will kill him in some horrible way, I know."

**A**FTER a moment the invisible girl asked Mark curiously, "What is your name, stranger?" She added naively, "I like your face."

"You have made a conquest, *mon ami.*" Etienne Moreau told Mark smilingly.

"Then you can see me, Lua?" Mark exclaimed to the girl. "You're invisible yourself, yet you can see?"

"Of course—why not?"

"I can't understand it," Mark told the others puzzledly. "The scientists who examined that invisible arrowhead from Trask's body said that it was invisible because the frequency of vibration of its atoms had been stepped up to such a point that light-rays slide *between* the atoms of it."

Crellys nodded. "That's the secret of this invisibility—an increase in the pitch of atomic vibration. The Shining God, whatever it is, is undoubtedly the source of some energy that can cause such an increase in atomic frequency."

"But if the light-rays slide between the atoms of Lua's eye-retinas, how can she see?" Mark demanded.

"I never thought of that!" exclaimed Moreau.

"I have," Peter Crellys said thoughtfully, "and I think I understand the reason. The light that slides between the atoms of the retinas is able to *induce* a reaction in their sensitive substance, just as one charged wire can induce a current in another without actual contact. So these Korlu are able to see."

"That seems possible, when you think of it," Mark said slowly. He asked the girl, "You Korlu are not invisible from birth, are you?"

"No, Mark, we are not born so," Lua told him. Her voice hardened with hate as she added, "It was the attacks of the Krim, the barbaric brown warriors from outside, that long ago drove us Korlu to refuge of invisibility."

"We Korlu," she continued, "are a white race, not brown like the Krimians. Thousands of years ago we came to this plateau from the east, from a land that had sunk beneath the sea, and of which we were survivors. We built this city here, by carving the vast outcrop of black rock we found here into a monolithic city."

"Soon we discovered the existence of the Shining God, the wonderful, radiant

thing that exists in the mountain on the island in the lake. With awe and reverence we worshipped the Shining God. For we perceived that it had the power to make any matter invisible, yes, even our own bodies. But we did not then make ourselves invisible, for we preferred to be able to see each other, and not to be like phantoms.

"Then, after long centuries of peace here, the Krimians came into this land. They came from the west, a marching host of fierce brown warriors who scaled the plateau and who attacked us, and finally drove us from this city. We Korlu had to take refuge on the island in the lake, where was our shining deity."

"But the Krimians attacked us even on the island, and sought to exterminate us. Only then, to save ourselves, did we Korlu avail ourselves of the power of the Shining God, and make ourselves invisible. Yes, and we made our clothing and our weapons and our tame jaguars and all else invisible, too."

"Since then, we have been able to repel the ceaseless Krimian attacks on our island. For these brown barbarians have never ceased to attack us."

"Always, up till now, have we Korlu been able to resist them. But now my people fear. For we have heard that the white stranger who came here last moon, the red-faced one, is devising a way for Groro to overcome us. We do not know what new weapon he is devising, but we know that if it succeeds, Groro will slay us to the last one and then will be the possessor of the sacred radiance, the Shining God."

### CHAPTER III

#### The Games of the Full Moon

THE throbbing voice of the invisible girl ceased, and there was a taut silence in the dusky dungeon.

"That's the story, Bradford," said



Peter Crellys finally, his handsome blond face drawn. "Hogrim is preparing something by which Goro and his warriors can conquer the Korlu and get the Shining God."

"Yes, and when they get *le Dieu Radiante*," burst Etienne Moreau, his mustache quivering with indignation, "that devil of a Hogrim will somehow sneak it away from these brown warriors and take it back to his master, to the Baltic Empire."

"And you know what that means," Crellys said tightly. "A power like that, the power of invisibility, in the hands of that crazy dictator! Invisible airplanes bombing cities, invisible tanks and soldiers attacking all frontiers—a madman using that power to crush the world's democracies!"

Mark Bradford leaped tormentedly to his feet, the chain attached to his shackle rattling harshly.

"No, that won't happen!" he cried. "It *mustn't* happen! We've got to smash Hogrim's schemes, somehow."

"Do you agree that we three form an *Entente Cordiale*, then?" Moreau asked keenly. "To keep Hogrim from getting the secret?"

"I'm in favor of it," Crellys said instantly. "We three are representatives of the last three great democracies on earth. We ought to work together."

"I'm with you!" Mark declared. "If we queer Hogrim's plans, keep him from getting the God, we'll have saved our countries from a terrible danger. It doesn't matter so much whether we get the secret ourselves, for our countries are in no danger unless the Baltic Empire gets a weapon like this."

Their hands met in a firm grip. The soft, complaining voice of Lua broke in upon them.

"I do not understand your talk," she said. "Are you planning an escape from here? There is no escape."

Mark Bradford patted her warm, unseen shoulder reassuringly.

"We'll escape all right—somehow," he declared with grim determination.

"Easier said than done," drawled Crellys wearily. "Tomorrow night's a big occasion for us, you know—the Games of the Full Moon, when we get scragged in that arena."

"To think that I, a citizen of France, should be butchered to make a Roman holiday!" Moreau exclaimed.

"Not a Roman, but a Krimian holiday," corrected Crellys, a faint grin on his pain-drawn face.

"It is the same," sputtered the little Frenchman. "Ah, but they shall be fooled. You shall see. I, Etienne Moreau, shall disappoint these bloodthirsty barbarians."

"Talk won't do it," Mark snapped. "Let's try to get these shackles off. Maybe we can pick the locks."

"We've been trying that for days," Peter Crellys told him hopelessly.

Mark bent to the task, however. With the tongue of his belt-buckle he endeavored to pick the lock of the heavy shackle that was fastened around Lua's slim, invisible ankle.

"If we could get Lua free," he muttered as he worked, "she could help us a lot, invisible as she is."

But the lock had been cunningly contrived. It resisted his efforts. And finally he was forced to give up.

Crellys had sunk back against the stone wall, his eyes closed, his handsome face twisted in harsh lines of pain from the throbbing agony of his wounded leg.

Etienne Moreau too had lain back and seemed dozing, muttering dire threats in inaudible French as he dreamed.

THE single ray of light from the loophole window of the cell faded. Darkness reigned complete, save for a

thin ray of white moonlight. Down here in the dungeons of the palace, nothing could be heard but occasional passage of heavy feet as Rucho, the jailer, went down the corridor.

"Mark, I will not be so afraid to die in the games tomorrow night, with you three beside me," Lua said softly.

The girl was close against him, her breath on his cheek.

Mark put his arm around her slim shoulders. She snuggled close to him, her soft hair against his face, as though seeking reassurance from him. An invisible girl—but a warm, breathing, frightened one.

"You're not going to die in those games, Lua, if I can help it," Mark told her determinedly. "Somehow we'll find a way to get out of here and smash Hogram's hellish schemes."

"Yet I fear for my people," Lua whispered. "Yes, I fear the time has come at last when the warriors of Krim will overcome my people, and possess the sacred God."

"And that will mean doom not only for your people, but for mine also, for all the world's democracies," Mark said bitterly. "If Hogram gets the God—"

He sat brooding on that dark prospect, mechanically twisting the little diamond ring on his finger, as was his habit during moments of abstraction.

After a time, he heard the regular breathing of Lua and knew she was asleep. He dozed himself, with the warm body of the invisible girl snuggled against him.

When dawn came, a ray of bright sun stabbing through the loophole window, Rucho, the jailer, entered the cell. Being careful to remain out of reach of the four shackled prisoners, he set down bowls of cooked vegetables and water.

"Eat and gain strength," the brutal-faced Krimian chuckled to them. "You will need it in the Games tonight."

But Lua would not eat.

"The food of the Krimians would be visible within me," the girl said. "And that might spoil any chance I have of helping us escape."

"I never thought of that!" Mark exclaimed. "Then you Korlu must always be partly visible by the food you eat, before your bodies assimilate it?"

"No, Mark," the unseen girl told him: "We consecrate our food to the Shining God, so that it too is invisible before we eat it. Otherwise, we would not be completely invisible."

THROUGH that long, hot day in the dusky dungeon cell, Mark Bradford racked his brain for a way of escape. He picked for hours at the shackles, without opening them. Finally he gave it up.

"There's only one chance—to make a break for it, as they take us to the arena," he said grimly.

"And that," Peter Crellys stated calmly, "will be useless. But we'll do it."

The ray of sunlight from the window crept slowly around the cell, then faded and died. And presently a brilliant white beam from the rising moon replaced it.

"It will not be long now," Lua said.

Almost with her words, there was a tramp of feet in the corridor, and the door swung open.

Juss, the captain who had captured Mark, entered with Rucho and a half-score soldiers with drawn swords.

"The Games are about to begin," said Juss, and added with grim humor, "We do not want you to miss them."

New shackles and chains were locked upon their legs before the old ones were unlocked. The armed soldiers held the ends of the new chains, and Juss kept his copper sword pressed against Lua's invisible back.

They were herded thus toward the door and out into the hall. But Peter Crellys had been left in his chains in the cell.

"What about me?" called the wounded Englishman.

"You shall live until the next Games," Juss told him. "A crippled man would not furnish good sport."

"Yes, yes," chuckled Rucho wickedly. "I shall have him sound and strong by the next Games, trust me."

"Goodbye, Crellys," Mark said tightly. "And if we cash out tonight—good luck to you."

"*Oui*, and if you live long enough to get a chance, be sure to kill that devil Hoggrim!" exclaimed Etienne Moreau fiercely.

Lua pressed beside Mark Bradford as they were marched along the corridor, their chains clanking, the other ends of them still held by the armed Krimians. He could feel the invisible girl trembling, and pressed her arm reassuringly.

They did not go up into the palace. Instead, they were led on through a labyrinth of tunnels in the solid black rock. The whole vast mass out of which Krim had been carved was honeycombed at this depth with branching passages.

Torchlight of flares held by their guards flickered through the passages ahead of them. Presently as they advanced, they glimpsed a barred door ahead, beyond which lay a great space as bright as day with moonlight. They heard a dim roar of thousands of voices from out there.

"The arena," Juss told them grimly. "You wait here—each goes to the Games in turn."

As they were halted, Mark Bradford made the break for which he had been tensing all along the way.

He lashed out with a hard fist that sent one of the Krimian guards sprawl-

ing. As the man fell, Mark snatched away his sword, and struck viciously at Juss with it.

The fierce-eyed captain dodged back, and yelled in alarm. Mark leaped forward, dragging his heavy chain. His sword stabbed the throat of the warrior holding Lua's chain.

Moreau had waded into the battle, and with his chain had knocked out another warrior. But then the other Krimians poured onto the three captives.

"Do not kill them!" Juss shouted. "We must not spoil the Games!"

Mark got the copper sword into another warrior, and shouted for Lua to run. Then the flat of a blade crashed against his temple, and as he staggered, he was smothered by a weight of leaping brown bodies.

It was over in a minute. Chained as she was, Lua had had no chance to escape. And Moreau, spluttering wild Gallic curses, had been gripped and held by two warriors.

MARK'S head was bleeding from the blow that had felled him, and his black eyes were blazing in the torchlight as he was hauled to his feet.

"You shall pay for this in a moment, stranger," Juss hissed, glaring his hate at the American.

"Couldn't—do it," panted Mark to his two fellow-captives. "It's no use."

"Ah, if I had a regiment of poilus to clear out this devil's nest!" raved the Frenchman in his rage.

"You bleed, Mark!" exclaimed Lua distressedly, touching his streaming temple.

He heard the rip of cloth, as she tore a strip from her invisible tunic. And the unseen bit of cloth was deftly bound around his head by her equally unseen hands.

Mark held her close to him for a moment, his hand touching the soft, silky

hair he could not see.

"You're a swell kid, Lua," he said thickly, "even if no one can see you. It's too bad things have got to end like this."

The dim roar of voices out in the moonlit amphitheater was suddenly broken by a loud blast of shrill horns.

"The signal for the first victim!" Juss exclaimed. He pointed to Mark. "He goes first!"

Six warriors dragged Mark roughly toward the barred door. It swung open, and he glimpsed a great space of bright-moonlit sand outside it.

His shackle was unlocked, and taken off him. Then he was given a violent push outward. He tumbled in the sand, a few yards outside the barred door. As he picked himself up, Juss tossed a copper sword out to him, and then closed the barred gate with a slam and locked it from inside.

"Defend yourself now, stranger!" called the Krimian captain mockingly. "You must needs be wary!"

Mark picked up the sword. Then as he straightened, an excited roar of thousands of voices beat on him.

He looked up. He stood in moonlight as bright as day, in the sand-covered arena of the Games.

Around him in the brilliant silver light rose the walls of the arena, thirty-foot stone walls no man or beast could jump. And above them slanted back the circular rows of stone seats of the great amphitheater.

Those seats were crowded now with all the people of Krim, many thousands of men and women in the white garments of artisans or the copper armor of soldiers. A fierce, barbaric audience, roaring excitedly at the sight of the young American who was to be the first victim in the Games.

Mark Bradford now saw, almost directly above him in the amphitheater, a

raised stone platform upon which sat Groro, the bull-framed king of Krim. Guards whose copper armor flashed in the moon were ranked around him.

And beside the giant, glaring king stood Joseph Hogrim. The agent of the Baltic Empire was leaning forward, his little eyes glittering in the moonlight as he peered down at Mark Bradford.

"A pagan scene, is it not, friend Bradford?" mocked Hogrim's throaty voice, chuckling. "But in a moment, I fear, you won't be able to appreciate its color. Something very special has been prepared for you."

Groro raised his great hand. "Let the beast forth!" he bellowed.

Shrill horns sounded again. And a barred grating at the opposite side of the arena was raised.

The audience watched that opening, every head in the brilliant moonlight turned toward it. Then a great shout roared from the populace.

"The jaguar!"

**M**ARK BRADFORD'S blood chilled. He was to fight a jaguar, then, with only this copper sword? Desperately he gripped the weapon, watching the opening across the arena.

But nothing came out of that opening! Mark felt bewildered. Then the blood suddenly drove from his heart, he felt ice congeal in his veins, as he looked across the arena.

Tracks were magically appearing in the moonlit sand, advancing toward him! Great paw-prints, one after the other, approaching him slowly, made as though by a phantom beast.

"God above!" muttered Mark thickly, as horrible remembrance rushed into his mind.

He was to fight an *invisible* jaguar! The same fierce, unseen beast that had stalked him on the beach, and which he had seen Juss and his warriors capture.

Mark stared at the advancing paw-prints, like a bird fascinated by the eyes of a snake. He knew that he had not one chance in a million against this beast that he could not see. Yet as the paw-prints advanced magically in the moonlight, he raised his puny sword, his eyes wild.

He seemed trapped in a nightmare scene. The brilliant full moon shining gloriously in the starred sky above, bathing with its rich light the huge amphitheater, the vast, tensely watching throng, the silver sand upon which those footprints of the invisible beast came steadily toward him.

"Goodbye, friend Bradford!" came Joseph Hogrim's mocking call, from above and behind him.

The paw-prints had halted, ten feet away, Mark could almost see the great beast bunching to spring.

Then fine sand flew up from the tracks as the invisible animal launched through the air at him.

Mark met its rush with sword raised, stabbing furiously at the thing he could not see.

His sword missed, and a heavy body hurtled against him and knocked him sprawling as he dodged. He rolled frantically on the sand, trying to scramble to his feet.

But great, invisible paws dug into his shoulders as the unseen jaguar whirled and leaped on him, pinning him down. A terrific snarl broke on his ears, and he felt the hot, fetid breath of the creature on his face, as its jaws opened to seize his throat.

## CHAPTER IV

### The Fight on the Lake

A THOUSAND things flashed through Mark Bradford's brain as he waited for the invisible jaws of the

huge, unseen beast to close upon his throat. He was still struggling mechanically, but the great paws of the jaguar held him down like a helpless puppet.

He could dimly hear, like the roar of a distant surf, the roaring of the people of Krim as they saw him flattened by his unseen antagonist. He wished with a flash of bitterness that he could take them all to death with him.

The jaguar's fangs did not sink into his throat! Something had stayed the unseen beast's attack. It was still holding him down with its great paws, but it was sniffing now at his head, growling puzzledly.

And suddenly Mark understood. The strip of cloth from Lua's tunic, which the invisible girl had bound around his bleeding forehead. *That* was what the jaguar was sniffing! This was Kuro, the girl's pet and companion, and its keen nostrils had caught her scent in that strip of cloth.

Mark lay waiting in an agony of apprehension. Would that scent be enough to keep the invisible beast from killing him? It seemed incredible, yet still the jaguar had not bitten. It was still sniffing, still growling deep in its throat, a perplexed, cat-like whine.

"The man is dead—catch the beast and return it to its cage!" came the bull-voiced order of Groro.

Mark, as he lay prone under the great animal's paws, glimpsed the barred door in the arena wall opening, the same door from which he had been thrust out to die.

Juss and his Krimian warriors emerged from the opening, holding a big net in front of them, cautiously advancing to trap again the invisible beast which they supposed had killed the prostrate American.

The jaguar whirled from Mark's body and faced the advancing men. Instantly Mark jumped to his feet.

"Lua!" he cried to the jaguar. "Lua is there!"

And he dashed forward at the astounded warriors who had thought him dead.

It was a mad chance Mark was taking—a chance that Lua's name would be enough to spur the unseen beast to action.

But it succeeded—perhaps because by this time the jaguar had caught the distant scent of its mistress.

"Back—the beast springs!" screamed Juss.

At that moment, the captain and two of his men were smitten by an invisible force that hurled them headlong. And then the panic-stricken, screaming warriors seemed the center of a whirlwind.

The unseen jaguar, Kuro, was striking lightning blows to right and left, its huge paws tearing men to ribbons, who seemed attacked by nothing at all. A ghastly sight was that slaughter under the brilliant moon.

"Kuro!" cried a thin, distant voice, that of Lua.

The surviving warriors were running screeching for their lives. The amphitheater was in uproar, and Groro's great voice was shouting ragingly to his warriors.

**M**ARK BRADFORD stooped and snatched the shackle-keys that hung at the belt of the mangled Juss. He rushed across the sand toward the opening of the barred door.

Kuro was running ahead of him, for he glimpsed the invisible beast's paw-prints in the sand. Arrows flashed down from above as Groro's guards shot at Mark.

The arrows missed him—and then Mark was inside the torchlit rock tunnel. Two warriors there were smitten down by terrific slashes of the unseen jaguar's paws, as Mark burst in. Mo-

reau shrank terrifiedly against the wall.

Then he heard Lua's throbbing cry of joy, and saw the chain of the invisible girl move swiftly.

"Kuro!" she was crying.

He heard a deep whine, and knew that the invisible girl was caressing the unseen beast.

"*Dieu*, what happened out there?"

Moreau was crying incoherently. "What—"

"I'll explain later—we've a chance to escape now!" Mark shouted. "I've the keys!"

He bent to Lua's shackle. As he fumbled it with the keys, the unseen jaguar growled menacingly.

"Silence, Kuro!" commanded the girl tensely. "These are friends!"

The shackle clicked open, the chain fell off the girl's invisible ankle. But as Mark sprang to Moreau, he heard a clank of armor and fierce cries, from the tunnels.

"Warriors come!" cried Lua.

"One more minute—," panted Mark.

Now he had the shackle off Moreau, too. The little Frenchman snatched up a dead warrior's sword and stood, eyes blazing in the torchlight, mustache twitching.

"Which way?" he cried. "We must get back to Crellys and set him free."

"We cannot!" cried Lua's voice close beside Mark. "See, the warriors are between us and the dungeons. If we go that way, it is death—but if we escape, we can come back later for Crelee!"

"She's right!" Mark exclaimed. "We'll ruin Crellys' chances and our own too if we're trapped here."

Torchlight was flickering strongly along the tunnels now, and the shout of advancing warriors was nearer.

"This way!" Mark cried, leaping toward a dark tunnel-mouth that opened a little back along the passage.

They followed, and in a moment all

were running along an absolutely lightless corridor hollowed out of the solid rock.

THE uproar behind them died out, and they moved through a silence like that of the tomb. Blindly, without sense of direction, they hastened on through the labyrinth of passages that honeycombed the solid rock foundation of Krim.

"They'll comb all these tunnels—trap us quickly if we don't get out of here," Mark warned.

"We must get to the lake—escape to my people, the Korlu, on our island," Lua exclaimed. "There you will be safe, for a time at least."

"We can perhaps do it if we can get out of these ratholes to the waterfront and steal a canoe," Mark said tensely. "But which way lies the lake?"

"Heaven knows!" exclaimed Moreau baffledly. "These *sacred* passages are all alike, to me."

Lua stopped in the darkness, so that Mark bumped into her.

"Kuro can lead us!" she exclaimed with a thrill of hope in her voice. "He has senses that we have not."

Mark felt her bend down and call the jaguar. The beast's great paws padded quickly on the stone floor and its furred side brushed against Mark's leg as it came in answer to its mistress' summons. He could not repress a stiffening of his muscles at his proximity to the creature.

"Kuro, lead us to the lake!" Lua was saying emphatically. "The lake—the water!"

There was a low, reverberating growl from the mighty animal. Then it began to move in quick, padding run, on through the tunnel.

Lua followed, keeping her hand on the beast's neck. And Mark and Moreau stumbled on through the dark-

ness after the two, wondering if they were not in some strange dream.

They traversed several more branching passages. Then a circle of bright, silver moonlight showed ahead. They went more carefully, and crouched just inside the tunnel, peering out at what lay before them.

They were looking out on the moonlit lake, from the mouth of a tunnel that opened in the monolithic sea-wall that protected the water-side of Krim. A little to their right, the wall gave way to stone docks. There floated many strong dugout canoes, moored to rings in the stone.

But they could hear voices of excited men on the docks, could glimpse copper-armed soldiers moving rapidly, holding up torches.

"They're searching for us!" rasped Mark. "They figured we might make for the canoes—and we can't get one of them, without being seen."

"I can get one without being seen," Lua replied instantly. "And I will bring it here. You wait."

She patted the big, furry bulk of the unseen jaguar crouched in the tunnel beside Mark and Moreau.

"You wait, too, Kuro," she ordered. "Wait!"

There was a rustle, and she was gone.

MARK crouched, unthinking now of the jaguar's nearness as he strained his eyes through the brilliant moonlight.

He could see nothing in the water along the sea-wall and docks. But presently one of the moored canoes bobbed gently on the water. And in a moment he perceived that its mooring-rope was slowly twisting, as though untying itself.

Then, gently and silently as though only drifting a little with the breeze, the long canoe floated slowly along the wall

toward them. Empty to the eyes, it drifted nearer until it floated just under the tunnel mouth.

"Come now—quickly!" hissed Lua's urgent whisper.

Mark and the little Frenchman slid out of the tunnel, lowering themselves silently into the canoe.

"Lie down!" ordered Lua in a murmur.

They obeyed, flattening themselves in the bottom of the big canoe. They felt the craft rock strongly as Kuro, the jaguar, jumped silently into it.

Then Mark felt the canoe moving softly out onto the lake. Lua was crouched beside him and he could feel the ripple of her lithe, unseen body as she paddled gently with her hands, not using the heavy wooden paddles that lay in the craft.

From where he lay, Mark could look back astern and see the shore receding. The stone docks were alive with copper-armed soldiers, searching by the light of bobbing torches. Beyond and above them towered the black, monolithic mass of Krim, with other lights bobbing about the squat palace of the king.

They were now a half-mile out into the moon-silvered lake. Mark saw a warrior on the dock suddenly stop, gaze out toward them. Then a fierce yell split the night.

"They escape!" yelled the warrior, pointing out after the canoe.

Mark leaped up to a sitting position and grabbed a paddle.

"No use sneaking now—they're after us!" he shouted.

Moreau too snatched up a paddle. And another paddle seemed to jump into the air and dig furiously into the water of its own accord, as Lua grasped and wielded it.

"We have a start—if we can reach the island of my people, we are safe!"

she cried.

The long, heavy canoe shot forward like a thing alive under their frantic strokes. They rushed over a silver sea. Four miles or more ahead there rose out of the moon-molten waters, the black mass of the isle of the Korlu.

But canoes were putting out after them, a half-dozen craft manned by yelling warriors. There could be no concealment from the fierce pursuers, in the brilliant light.

Mark wielded his heavy paddle in long, deep strokes, each of which jolted the heavy canoe ahead. The blade of the invisible girl rose and fell with swift, machine-like regularity, and little Moreau was digging the water like mad.

MINUTES sped by, and every one of them seemed to bring the pursuers a little closer. The Krimians had stopped their yelling, were putting all their energy into paddling. There were five or six of them in each canoe, and they shot through the water at much greater speed than their quarry.

As this stern and bitter chase went on, the island of the Korlu slowly loomed larger ahead. But Mark felt his strength running out of him like sand, and Moreau was nearly exhausted. Even Lua's paddle seemed to drag now.

Kuro growled fiercely. And Mark glanced back and saw the Krimians overtaking them by leaps and bounds.

"One more spurt!" he panted. "We're only a mile from the island."

Lua suddenly uttered a high, shrill cry, a curious falling inflection that she twice repeated.

In answer, the Krimians behind set up a savage shout of triumph as they closed upon their prey.

Now the island was but a half-mile ahead, a dark, unlighted mass a few miles across, rising to that steep and



somber black peak. But Mark knew that they could never reach it before they were overtaken.

"They've got us!" he cried. "Lua, you and the jaguar slip overboard and swim for it. You can escape."

"I will not leave you, Mark!" cried the invisible girl breathlessly.

"Do as I say!" he gasped. "There's no use of us all being killed—if you get away, you can help Crellys to escape and thwart Hogrim's schemes."

"*Oui!*" panted Moreau, his face livid from exhaustion in the moonlight. "We're done for, but if you can get Crellys out—"

"No!" the girl's voice cried defiantly. "We escaped together, Mark — we'll live or die together—"

Wolf-like shouts of bloodlusting men split the moonlight, rising above the thresh of paddles as the Krimians bore down on their prey.

Mark Bradford ceased the useless effort at escape, stopped paddling and stood up in the canoe, clubbing his heavy paddle. His face was drawn and terrible in the moonlight as he awaited the crashing impact of those oncoming canoes and their yelling occupants.

*Whizz!* That twanging sound came from somewhere close by. And simultaneously, a giant Krimian warrior standing up in one of the oncoming canoes clutched his throat wildly.

A red hole had suddenly been torn through his throat by some mysterious power. He toppled sidewise into the water. And as he did so, the twanging sound was repeated manifold from all around Mark. *Whizz! Whizz!*

"The Korlu!" screamed one of the stupefied Krimians. "The Korlu are on us!"

"My people—I called them for help and they came out in their canoes!" Lua's voice rang joyfully. "See, their unseen arrows smite the men of Krim!"

## CHAPTER V

### The Chamber of the God

TO Mark Bradford, the bewildering scene was like an incomprehensible nightmare. The twanging of bows went on mercilessly all around him—unseen bows, wielded by unseen men in invisible canoes!

The deadly missiles that no eye could see tore into the fear-mad Krimian warriors, as they frantically tried to turn their canoes around and escape.

One canoe, that which had been the rear-most of the Krimian craft, escaped. But the other craft lay motionless on the moonlit lake, filled only with dead men.

"*Dieu!*" gasped Moreau. "We are dreaming this—it is impossible—"

Long, slender dimples or hollows in the water appeared all around Mark Bradford's canoe, approaching him. They and the ripple of unseen paddles were all his eyes could perceive, as the invisible canoes and warriors came toward him.

"Are you safe, Lua?" cried a deep, manly voice from one of the unseen craft.

"I am here, and safe, Fuor!" Lua's voice rang in glad answer. "And these two men with me are friends, who helped me escape from Krim."

"Your father, Nurth, will be overjoyed that you still live," declared the deep voice of the invisible man Fuor. "We all thought you had perished on the mainland."

"And I would have perished, but for these white strangers," Lua told him. "They helped me escape, and they bring news of peril threatening our people."

In a few moments, Mark and the Frenchman and the girl started paddling toward the dark island. All

around them, long, hollow dimples and ripples trailed steadily in the moonlit waters as the unseen canoes of Fuor and his men escorted them.

Soon their canoe ran in on a sandy beach, beyond which lay black woods. As they landed, Mark noticed the suddenly-appearing imprints in the sand of the invisible canoes as they too were hauled up.

And as they started through the woods, Lua keeping her fingers twined with his to lead him, and Moreau stumbling behind them, Mark heard the soft tread of many feet around him, the joyful chatter of many voices, the whining of Kuro answered by the purring growls of other tame, invisible jaguars.

"I'm glad those *sacré* beasts are all invisible," muttered Moreau. "They may be tame, but if I could see them, they would give me—what do you say?—the jitters."

Accompanied by a phantom throng, led by the invisible girl, Mark and the little Frenchman moved on through the moon-shot woods toward the black mass of the central peak.

Cultivated gardens and groves lay around the peak. And in the face of the dark, brooding mountain, Mark discerned a hollow entrance barred by a heavy copper grating.

"The city of the Korlu," Lua told him, leading him toward that entrance in the mountain.

"The city? Where?" Mark demanded, puzzledly twisting the diamond on his finger as he stared baffledly about.

In a few moments, he was enlightened. The copper grating was raised, like a portcullis, as they approached. And they passed into a huge passage hollowed out of the mountain.

**T**HE city of the invisible people lay inside the peak! A maze of great

chambers, halls and passages had been hollowed out of the black rock mountain. And cunningly oriented shafts allowed light and air to enter all the labyrinthine levels of this city inside the peak.

Lighted torches flared along the dark passage-tunnels, and there was a buzz of many hundreds of voices around them as they went forward. Then they entered an enormous, perfectly circular space at the center of the mountain, illuminated by flaring torches and by the bright bars of moonlight that entered through the great, oblique ventilation shafts.

Here opened scores of passages that led to working and living quarters in other levels. And here in this huge torchlit hall, there was a babel of countless voices, the shuffle of numberless feet, as a great throng pressed around them. Yet to the eye, only Mark and Moreau were visible.

"*Ciel!*" muttered Etienne Moreau, his eyes bulging. "It is like a city of ghosts!"

"Lua has returned!" the deep voice of Fuor was shouting to the people. "These men are her friends."

A great shout of rejoicing went up from the invisible throng of Korlu gathered in the huge hall.

"Lua, my daughter—I thought you dead!" cried a cracked, aged voice.

The girl's hand fell from Mark's arm, and he heard her running forward surely to the invisible man who had called.

"My father!" he heard her weeping.

Mark and Moreau halted, staring stupefiedly in the torchlight, bewildered by the phantom crowds. But now Lua gripped Mark's arm again, and led him forward.

"My father, Nurth, chief elder of the Korlu," she said. "I have told him what you did for me."

A thin, bony, unseen hand gripped Mark's arm, and he heard Nurth's voice, quivering with emotion.

"You are welcome, white strangers!" Nurth said. "Yes, you are the first strangers in all the history of Korlu who have been welcomed here to the isle of the Shining God. Only twelve moons ago, another white man penetrated here, but him we held prisoner until by chance he escaped from us."

"That must have been Francis Trask!" exclaimed Moreau suddenly. "The man who first discovered this place."

Mark nodded. "They must have wounded Trask as he escaped. That explains the invisible arrowhead he carried out in his back."

Nurth's voice was adding, "Lua has told me of that other white stranger, the red-faced one, who now plots with Groro to help the Krimians conquer us. His plots must not succeed—profane hands must not seize the Shining God!"

"His plots won't succeed if I can help it," Mark declared. "But you people—invisible—you should be able to stand the Krimians off."

"Always we have done so," muttered old Nurth, "but if this evil white man devises new weapons for the men of Krim to use against us, they may win. There are but a few thousand of us Korlu, where there are tens of thousands of them."

"Ask him about rescuing Crellys," Etienne Moreau said to Mark in a low, urgent voice.

When Mark had told the chief of the Korlu about the prisoned Englishman, Nurth's voice was doubtful.

"It may be that we can rescue him from Groro's dungeons—though it is perilous for us Korlu to venture into Krim, even invisible as we are. There are many traps there—"

"But we can talk of these things

later," the old chief added. "Now my people prepare a feast in their joy over my daughter's return. You shall be honored guests at our feast."

ALL the labyrinthine mazes of Korlu were now stirring with joyful activity of unseen men and women. More torches were being put up in this great hall, and tables had been set up which were being loaded with copper dishes and flagons.

Lua took Mark's hand and led him and Moreau to seats at the head of one of the tables. She sat beside Mark, and he heard Nurth's voice from beyond the Frenchman. And from all the tables rose gay chatter of laughing voices, a babel of men and women that was almost deafening.

Yet to their eyes, Mark Bradford and Etienne Moreau seemed sitting here in the great torchlit hall absolutely alone! Only the fact that the flagons, dishes and knives along the tables were in constant movement gave evidence of the feasting throng whose voices they heard.

"Like a banquet of ghosts!" muttered the little Frenchman.

A flagon beside Mark lifted from the table, and there was a sound of liquid gurgling into a copper cup in front of him, though he saw nothing poured. Then the cup was lifted and presented to him by an unseen hand.

"Drink, Mark," Lua's soft voice bade him. "Our wine is good."

Mark stared into the cup. It was empty, to his eye. But when he raised it to his lips, a sweet, fiery wine poured into his mouth.

Moreau was staring at his empty copper plate, and the little Frenchman's face was rueful.

"This is a feast of Barmecides," he complained. "Why do they not bring food?"

"It is before you, friend," asserted the genial voice of Lua's father.

Moreau gingerly touched the plate, and seemed astounded by what he felt.

"A roasted fowl!" he exclaimed unbelievably. "Invisible food and wine!"

"Did I not tell you that we Korlu consecrate all our food to the Shining God, so that we shall not be partly visible after eating it?" Lua reminded him.

Mark attacked the food on his own plate. Invisible it might be, but it was solid and satisfying—roast flesh and cooked vegetables. And the unseen wine Lua poured again into his cup warmed his exhausted body and brain.

"ARE you not fearful of being surprised here in your city by the Krimians?" Moreau was asking curiously of Nurth, the unseen old man beside him.

"No, we have lookouts always on the shores of the island," Nurth's voice answered, "and whenever the Krimians have come, we have left our city here and attacked them in the forest. It has been long since they have dared attack us, but now Groro thinks our God is in his grasp—"

"Don't worry about Groro," Mark Bradford bade the ruler of the Korlu. "It won't take us long to get Crellys out of that hellish city, and then the three of us will cook up some way to smash Joseph Hogrim's schemes, whatever they are."

The strong wine had filled Mark with a feeling of utter confidence in himself. He had won out against Hogrim so far, and he'd defeat him utterly before he was through!

And in the meantime, it was good to sit here in feast at torchlit tables with the phantom throng of the Korlu! Invisible they might be, but they were

good scouts—laughing, joking, happily celebrating the return of Lua.

Mark's hand, a little unsteady from wine, went out and touched the unseen girl's clear-cut face and soft hair, as he had done before in the dungeon of Krim.

"You'd be beautiful, Lua, if I could see you," he told her.

"Does beauty lie only in the eye, then, to you men of the outer world?" her gay voice mocked him.

"By Heaven, no!" he exclaimed. "You're the bravest, the finest, the truest girl I've ever met, even though I've never seen you."

Her warm fingers twined with his, her rounded, unseen shoulder pressed against him.

"I am glad you think that, Mark," her voice came softly. "I am very glad!"

The feast went on. Copper flagons and cups rattled and moved on the tables, as the unseen, potent wine was consumed. Laughing women brought more and served it, as invisible themselves as those they served.

Mark had never felt better in his life. All his worries about Crellys and Hogrim and the dread danger overhanging the world, had dissolved in his warm glow of well-being.

Moreau had put his head down on the table and was sleeping exhaustedly. The torches were guttering down, and the feasters were now moving away toward their own quarters, their voices receding in gay laughter.

As Nurth left, Mark heard Lua whisper for a moment with her father. Mark poured himself another cup of the sweet, potent wine. He drank it, and laughed at Moreau, sleeping in the silence that now reigned in the great hall.

"Mark," asked Lua's voice from beside him, laden with queer emotion,

"you have no horror of me because I am invisible? You do not think that is dreadful?"

"I think it's swell," Mark told her. "No ordinary visible girl could have done what you did tonight, Lua."

His arm was around her unseen form, and beneath his hand he felt the quiver of her shoulder.

**H**IS heart suddenly began to thud. Slowly, he put his other arm around her pliant waist, drew her close. He felt her breast rising and falling rapidly against him.

"Lua," he muttered, his face taut and strange in the torchlight, his eyes suddenly serious.

"Yes, Mark," she whispered. "I know what you want to say."

His hands cupped her invisible face. He bent, and his lips pressed against a soft, quivering, half-opened mouth, the fragrance of which made his brain spin.

"Lua—Lua—," he whispered, over and over.

They clung thus in the torchlight. And Mark did not now think of what a weird picture he made, embracing what seemed only the empty air. He had lost all sense of strangeness.

The invisible girl in his arms—she wasn't now the other-worldly freak she had seemed at first. She was Lua, his brave, loyal little comrade, the girl he loved.

Lua stirred in his embrace after a time, and drew him softly to his feet. She asked an unexpected question.

"Mark, do you wish to see the Shining God?" she asked breathlessly.

Even in the flood-tide of his newly-discovered love, Mark Bradford felt a sudden thrill.

The Shining God! The mysterious thing that was responsible for the invisibility of all in this strange land—the

thing whose potent lure had drawn him here, and that might mean life or death for the democracies of the world!

"Lua, can you take me to it?" he asked the girl astonishedly. "Is it allowed?"

"Yes, I asked my father Nurth but now, and he consented," Lua told him. "Come, Mark—it is not far."

The torches in the great hall had burned down to smoking stumps. Shadows filled the vast place, except where bars of moonlight entered through the long air-shafts. The little Frenchman still slept soundly.

Lua took and lit a fresh torch. And then, her arm hooked inside his, she led the way across the great hall and into one of the many passages branching from it.

The wine that fogged Mark's brain made him stumble, but his staunch, invisible little companion steadied him. They were moving down a steep, lightless tunnel that wound ever deeper into the solid rock of the mountain's base.

Lua continued to guide Mark's unsteady steps as they followed the descending curves of the gloomy tunnel. The air became damp and chill as they proceeded, and he vaguely noticed that moisture trickled from the walls.

"We are now below the level of the lake," Lua told him. "And the chamber of the God is near."

A faint, shaking radiance seeped into the tunnel from ahead, vying with the light of the girl's torch.

Then they emerged suddenly into a vast rock chamber as large as the great hall above. It was filled with dazzling light that for the moment blinded Mark Bradford's eyes.

"The Shining God!" exclaimed Lua, deep awe and reverence in her voice. "The great gift of the earth that has for ages been the refuge and the deity of my people!"

Mark Bradford opened half-blinded eyes. And a deep exclamation fell from his lips, as he stared stupefiedly.

"Good God!" he said huskily.

He was looking on the splendor and the terror of the Shining God.

**T**HE thing was an ovoid, crystalline mass, ten feet high, poised on its tip in a round pit-opening in the floor, like an egg standing upright in an egg-cup. A crystalline mass that was blazing with an unearthly, dazzling radiance!

Its radiant white rays beat out like spears of intensest light, to every corner of the huge chamber, lighting it up with wild, shaking splendor. He could see that many other tunnels opened into the chamber. And the rock walls and floor and ceiling, to a great depth, were transparent, invisible.

"This thing—an unbelievable mass of radioactive matter!" gasped Mark. "From deep inside the earth—"

"Yes," Lua said reverently, "our wise men have always believed that the Shining God was forced up by great convulsions from inside the world, where there are mysteries which no man can know."

"Radioactive matter from the earth's interior," Mark repeated, staring with his dark face wild in the shaking light. "But not any radioactive matter such as is known to science today—"

For dazed as he was, Mark Bradford saw that the radiation from this stupendous mass was no mere matter of gamma or alpha rays, but comprised energies of far more potent nature.

Energies that could so increase the frequency of atomic vibration, of any matter they fell upon, that that matter became like a sieve to light, became invisible! Such was the terrific radiation that poured from this blazing God!

"See, the things that my people bring here to be made unseen," Lua was say-

ing to him in an explanatory tone.

Mark had noticed. Around the blazing ovoid of the Shining God, the great chamber's floor was crowded with a miscellaneous variety of objects—canoes, paddles, spears and bows and arrows, clothing and vats of wine and food.

Some of these things, that had only recently been placed here, were solidly visible. Others had assumed a translucency, a cloudy vagueness of outline. Still others were so transparent that they were already almost invisible.

"It is here that we Korlu come too to be made unseen—each of us must spend a night every two moons, lying in front of the Shining God, so that we may remain invisible," Lua said.

"But I thought that once matter was made invisible, it stayed that way," Mark said dazedly.

"No, especially living matter," she told him. "Living creatures, unless they renew their invisibility here each two moons will soon become visible again. Inert matter takes longer."

"Of course!" he exclaimed, suddenly understanding. "A living body creates new cells all the time—and in time the whole body would be of new cells, and so visible."

**B**Y habit, Mark had been turning the diamond on his finger as he stared at the blazing ovoid. And suddenly he noticed a queer thing about the ring. The diamond had become completely invisible.

"Good Lord!" he exclaimed. "This diamond—it only took a couple of minutes for the rays to make it invisible!"

"It is always so, with gems like that one," Lua affirmed. "They and a few other things, like charcoal, are made invisible almost instantly by the Shining God."

"Diamonds and charcoal are both

carbon," Mark muttered, comprehending now. "Carbon atoms must be peculiarly susceptible to the influence of the rays, because of their atomic structure—"\*

He staggered suddenly, feeling a sick weakness invade him, a giddiness that whirled his brain.

"Let's return, Lua," he said thickly. "This awful force, or else the wine—I'm getting dizzy."

At once, Lua took his arm, and moved back with him into the passage leading upward. Mark felt as though a deep wave of darkness and weakness was sweeping over him.

"Got to stop—rest," he muttered, sinking to the floor of the passage. "Tired—sleep a little—"

"Sleep then, Mark," whispered Lua's soft voice, her hand caressing his hair. "I will watch over you."

"Too much wine—maybe—," he tried to say. Then darkness claimed his brain, and he knew nothing.

When a slow consciousness returned to Mark Bradford, he felt stiff and sore, as though many hours had passed. And his head was aching violently, his mouth dry.

"Hell, I feel as though I'd been drugged," he thought. "But that's nonsense—no reason why the Korlu should drug my wine—"

He was lying face down on a rock floor. Now, stiffly, he rolled over and sat up. And a blazing, shaking radiance smote his eyes that made him cry out.

It was the Shining God. That stupendous ovoid of blazing radioactive matter—he had been lying sleeping here only a few yards from it, on the floor of the great chamber.

\* Diamond atoms are arranged in a peculiarly regular form, and this molecular regularity would tend to adapt itself most easily to the effect of the rays from the strange crystal of invisibility.—Ed.

"What the devil!" Mark muttered stupefiedly, rising to his feet. "Who dragged me into this place?"

Then suddenly a terrible thought crashed home into his brain, a nightmare realization.

He must have slept in front of the Shining God for many hours. And that meant that its awful radiance had for hours beat upon the atoms of his body. It meant—

Mark Bradford slowly, mechanically, looked down at himself. His heart gave a great throb, and then seemed to stop altogether.

What he had dimly feared, had happened. He could not see his own body, and the hand he raised wildly in front of his face was now as unseeable as the diamond he wore on it.

The Shining God had made him—invisible!

## CHAPTER VI

### Phantoms in the Night

HE, Mark Bradford—an invisible man!

"It can't be real," he muttered hoarsely to himself. "I'm still sleeping—dreaming—"

He put both hands tightly in front of his eyes. Yet still he could see the blazing ovoid of the Shining God as clearly as ever. His hands, his whole body, were as transparent as air.

Mark uttered a thick cry. He, an invisible man, an unseen phantom to the eye! The thing was so unexpected and unnerving that it had set him trembling violently. Then, as his cry reverberated through the great radiant chamber, an unseen hand touched his own invisible body, and two warm arms clasped him.

"Mark, do not fear!" came Lua's happy voice. "Now you are invisible, like me. We shall be together always."

"I don't *want* to be invisible!" Mark's voice ripped rawly. "I want to be a normal human being, not a ghost, an unseen shadow—"

He felt Lua stiffen against him. And her voice was strained, and had a catch in it.

"Am I then a shadow or a ghost?" she exclaimed. "Mark, when I asked you, you said that you had no dislike of my invisibility, no dread of it. That is why I gained my father's consent to let you sleep before the Shining God and become one of us Korlu—that is why I put the drug into your wine. I thought you would be glad, that you loved me—"

She broke off in sobs. And quick contrition swept through Mark's dazed mind.

Lua, he knew, had thought to give him the greatest gift in her power, the great treasure of her people, in making him invisible like them. The girl had not dreamed that he would want to remain visible.

He drew her sobbing, unseen little figure back into his arms. His grasp tightened protectively around her, and with his fingers he tilted the little face that was tear-stained to his touch.

"It's all right, Lua," he said unsteadily. "I told the truth when I said I loved you, and what's good enough for you is good enough for me."

She clung to him, her sobs quieting, as he soothingly stroked her hair.

"We can become visible if that would please you better," Lua was saying muffledly against his breast. "We need only wait two moons, and as our bodies renew themselves, we will slowly become visible unless we return to the God."

"We'll talk about that later," Mark soothed her. "Visible or invisible, you and I are going to stick together from now on, Lua. And that's all that mat-

ters." His arm tightened about her.

Yet as they returned up through the dripping, damp rock passages from the chamber of the Shining God, Mark could not quell the sense of unreality he felt. Had any other man ever been catapulted into such a fantastic situation?

**B**ARS of golden sunrise slanted through the air-shafts into the great hall of the Korlu, when they reached it. Lua uttered a call, and Mark heard the tread of many feet, the sound of many excited voices, as the invisible inhabitants of the city inside the mountain gathered rapidly around them.

"Now you are one of us Korlu," the voice of Nurth told Mark. "And you are the first stranger that we have ever allowed to receive the great gift of the Shining God."

"I appreciate that," Mark said uncertainly. "But my comrade—where is he?"

Then he saw little Etienne Moreau pushing through the phantom throng. The trim little Frenchman was the only person in sight in the whole great, crowded hall.

"Bradford!" he was crying, looking baffledly around. "They tell me you too have become a phantom!"

"That's right, Moreau," laughed Mark, slapping the Frenchman's shoulder.

Moreau spun dazedly around, looking through Mark without seeing him. Then he felt Mark's face.

"*Dieu!*" he exclaimed. It is true!"

"Your comrade, too, we shall make one of us," Nurth told Mark, but when Moreau understood the proposition, he recoiled violently.

"I, Etienne Moreau, invisible? A thousand times, no! I like the ladies too well—and how, I ask you, can an



invisible man ever hope to make conquests among the fair sex?"

Then the Frenchman's face was serious with a sudden thought.

"Bradford, your being invisible will help us greatly in one thing—we have still got to rescue our friend Crellys from Krim."

"I know it," Mark clipped. "I'm going to Krim after Crellys. And while I'm there, I'm going to kill Joseph Hogrim."

"No!" Lua cried anxiously. "You cannot venture back into Krim, even though you are now unseen! There are many traps that the brown barbarians have set there for any of us invisible ones who dare to enter there. You will lose your life."

"I'll take the chance," Mark rasped. "Peter Crellys is our comrade and ally, and we can't leave him there to be murdered in the next Games. And Hogrim has to die, before he can lead the Krimians here to attack your people."

"That is truth," Moreau muttered. "If Hogrim lives, he will undoubtedly lead the Krimians here, armed with some weapons that can conquer the Korlu. And that means the Shining God in the hands of Hogrim—of the Baltic Empire."

Mark Bradford nodded his head, quite forgetful of the fact that no one could see the gesture.

"I'm going to Krim tonight," he said grimly. "In one of those invisible canoes. I can approach the city unseen, and I can enter by that tunnel out of which we escaped."

"Then I go with you, Mark!" Lua cried.

He began to protest, but she reminded him, "You said that we do not separate any more, you and I."

"All right, Lua, you can come," Mark finally conceded. "But you're not going into any danger, understand."

"And I too go with you, of course," Moreau declared, but Mark emphatically negatived the proposal.

"You'd destroy all chance of my success, Etienne—a visible companion like you."

The little Frenchman protested violently, but finally had to surrender to the logic of Mark's contention.

**T**HROUGH the hours of that day, as he waited for night and the start of his desperate venture, Mark Bradford felt like a dark cloud over his mind the menace that was gathering in Krim.

He knew that Joseph Hogrim was cunning enough to find some way of discounting the invisibility advantage of the Korlu. Hogrim would find a way to enable the Krim to conquer, if given time. And once they had conquered and had the Shining God, Hogrim would somehow manage to transport that radiant mass across the seas to the Baltic Empire, there to furnish a ruthless dictator with a terrible weapon.

For the sake of the world, for the life of the great democracies, Joseph Hogrim must die! Mark felt utterly justified in ending the life of the crafty spy who would, if not checked, give to his master a weapon with which to slay millions.

Lua clung close to Mark through the hours of that day. Arm in arm with her, he moved through the city in the hollow mountain, and across the island outside, witnessing the fascinating and fantastic spectacle of the Korlu preparing for the coming attack of the Krim.

Hammers rose and fell in mid-air, as invisible smiths beat out copper arrow and spearheads, which were later to be laid before the Shining God. Chips flew up from great tree-trunks on the ground, as they were shaped into dug-out canoes. All through the hollow peak and across the island ran the

sounds of activity as the unseen people grimly prepared for war.

Food was gathered and stored in the mountain-city, in preparation for possible siege. Fruits and vegetables seemed to leap suddenly from their stems and collect themselves in baskets which mysteriously levitated into the air and moved off toward the tunneled peak. Fish leaped out of the lake waters onto the shore, jerked by invisible hooks and lines of unseen fishermen, and birds tumbled dead from the trees as phantom arrows slew them.

As these ghostly people toiled and moved about in their urgent preparations, Mark Bradford perceived that their sense of hearing was developed so acutely that they could recognize each individual's footsteps and voice, even at a distance. There was no bumping into each other, no confusion of invisible hands, as he might have expected.

Etienne Moreau wandered moping through the island all day. The little Frenchman was a disconsolate figure, for to the eye, he was the only person on the whole island.

"*Dieu*, this is like being a Crusoe on an island of ghosts!" he complained to Mark that evening, as the darkness deepened and the moon rose. "I would like to see real people again—will you not take me with you to Krim?"

"You know yourself it's out of the question," Mark told him. Then he turned. "Are Fuor and his men ready, Lua?"

"Yes, Mark," the girl answered. "And I am ready too—I have my bow. I wish we could take Kuro with us, but he might give us away."

Mark could hear the soft padding of the unseen beast beside them as they went down to the beach where Fuor and four paddlers waited with a canoe.

They entered the unseen craft, and as its phantom paddles dug the water,

it moved out onto the moonlit lake.

"Now may the power of the Shining God protect us," muttered Fuor's deep voice. "For we go into great peril."

THE canoe moved steadily over the moon-silvered waters. To Mark's eyes, it was merely a long, hollow dimple that swept smoothly across the gleaming lake.

He felt the invisible knife at his belt. It was the only weapon he had brought, a long, keen blade. Mark had stripped to his shorts—he didn't want creaking shoes or rustling clothing to betray him.

Fuor's paddlers stroked the waters more gently after an hour of progress, as the black mass of Krim loomed close ahead. The city seemed stirring with many torches and moving figures tonight, and ruddy light flickered from every window of the squat palace of the king Goro.

Ever more cautiously and softly, the big dimple in the moonlit water that was the only visible evidence of their existence moved toward the dark stone sea-wall of Krim. Mark could see copper-armed soldiers marching along the docks, beyond the sea-wall, and glimpsed many more canoes moored there.

"To the right," Lua whispered to Fuor as he steered the phantom craft.

Presently they were inside the deep shadow of the high wall. Taking care not to bump the wall loudly, Fuor brought the canoe abreast of the dark tunnel mouth out of which Mark had escaped with Moreau and Lua and the jaguar, on the preceding night.

"I am going now for Crellys, and then after Hogrim," Mark whispered to the girl. "You will wait here with Fuor and his men."

"No, Mark!" she protested in a tense murmur. "I go where you go—"

"I say you stay!" he told her harshly.

And then his whisper softened, his arms tightened around her little figure for a moment. "Please, Lua—for my sake—"

"I do not want to stay," she murmured reluctantly. "But I will do it."

He kissed her, then silently rose and clambered from the canoe into the mouth of the tunnel.

The passage was of stygian obscurity as Mark started along it, his knife gripped in his hand, his naked feet making no sound on the stone floor. He had a good idea of the way they had come the preceding night.

He met no one as he pushed deeper into the labyrinth of passages. Following his memory as guide, Mark groped blindly on in the darkness, until at last a glimmer of torchlight reached him from a lighted passage ahead.

He peered into that corridor, and his heart bounded as he perceived it was one of the dungeon passages. He could hear the clank of armor and a murmur of voices from somewhere in the distance. Yet, confident in his invisibility, Mark moved out into the corridor.

Presently he stood outside the heavy door of the cell in which he and Moreau and Peter Crellys had been confined. He peered through the little grating in the door.

Crellys lay upon the stone floor in there, still shackled to the wall, his drawn white face lit by a bar of moonlight. He was sleeping.

Mark knew that he could do nothing without the keys to the door and to Crellys' shackles. And Rucho, the jailor, had those keys. He must find Rucho.

He was starting along the hall to search for the man when he heard a familiar, heavy tread, a coppersy jingle. Mark flattened himself against the wall. Rucho was coming now.

**T**HE squat, brutal-faced jailor came down the torch-lit hall, passing

within a foot of Mark's invisible figure without giving him a glance. As he reached the door of Crellys' cell, the jailor peered through the grating in it in a brief inspection.

Instantly, Mark leaped forward and pressed the keen point of his dagger against the back of Rucho's neck.

"Silence, or you die!" he hissed.

"A Korlu!" stammered the squat jailor.

"Open this cell and enter," Mark rasped. "Quickly!"

With trembling hands, the jailor unlocked the door and entered the dusky cell. Mark kept the knife pressed against his neck.

Crellys stirred and woke, then sat up and stared astonishedly at the sight of the jailor entering, shaking with fear.

"It's me, Crellys!" whispered Mark. And then to the fearful jailor—"Unlock his shackles."

"Bradford?" gasped Crellys, staring around the cell, his handsome blond face wild. "Where are you?"

"Here—invisible," Mark rasped, as the jailor stooped toward the shackles with his keys.

"Good God, you've become like the Korlu?" Peter Crellys exclaimed. Then the young Englishman's eyes flashed. "Thank God you came, Bradford. You've got to warn the Korlu—Groro is leading the Krimians to attack them at dawn tomorrow!"

"Tomorrow morning!" Mark cried in a low voice, aghast at that unexpected information.

"Yes, I heard warriors talking in the corridor today," Crellys said rapidly. "Hogrim has had the Krimians manufacturing some kind of weapon with which he swears they can easily overcome the Korlu. Tomorrow before dawn they sail in all their canoes for a surprise attack on the island."

"Hogrim is going to die—tonight!"

Mark rasped grimly. "I came here to get you, and to—"

Suddenly Rucho, the jailor, exploded into action. He had seized a moment when the attention of Mark and Crellys was engrossed in their swift exchange of information.

The squat jailor suddenly turned and with a lightning shove sent Mark's invisible body hurtling against the stone wall of the cell. Then Rucho leaped toward the door, his lips opening to shout an alarm.

## CHAPTER VII

### The City of Peril

THE cry that Rucho was about to utter never left his lips. For as the Krimian tore the door open and opened his mouth to shout, Mark Bradford rebounded from the wall against which he had been flung. He threw himself upon the jailor, his dagger uplifted.

The keen, invisible blade drove into Rucho's throat. To the eye, it was as though a narrow wound suddenly appeared by magic in the man's neck. Then blood spurted from it. Gasping, gurgling in agony, his eyes rolling horribly, Rucho's squat body slumped to the floor.

Mark bent over him. The jailor's body twisted, and with a rattle of escaping breath, he was dead.

"My God!" husked Peter Crellys, staring wildly at the dead man.

To Crellys, Mark knew, the struggle of Rucho had seemed a nightmare conflict with the empty air.

Already Mark was tearing the keys from the dead jailor's waist. Now he tried them rapidly in the shackles of the Englishman, until he found the one that fitted the locks.

"Come on," Mark whispered, taking the Englishman by the hand. "We've got to get you out of here, quick. Lua

and other Korlu are waiting with a canoe."

He led the crippled, stumbling Crellys rapidly along the torchlit dungeon corridor, and into that maze of black passages in the rock, through which he had come. He halted there and rapidly told Crellys how to reach the opening where the canoe waited.

"But you?" Crellys murmured tensely.

"I'm going to kill Joseph Hogrim," Mark whispered grimly. "It's the only way to save the Korlu from being conquered, to keep the God out of Hogrim's hands."

"I'll go with you," the crippled Englishman declared.

"No, I'd have no chance then!" Mark said fiercely. "Go to the canoe—tell Lua and Fuor that if I am not back in an hour, they are to return to Korlu without me. At any cost, the Korlu must be warned of the nearness of attack."

Before Crellys could protest further, Mark shoved him on into the dark passages. Then Mark turned back himself into the maze of torchlit corridors underneath the palace of the king.

The American headed, soundless and invisible, toward the stairs that led up into the palace. He had a good idea of their location, from memory of the time he had been brought down them, and soon he located them.

But two Krimian warriors stood at the foot of the stairs in the flickering, dim light of a guttering torch, talking earnestly.

"I tell you, I do not like it!" Mark heard one of them saying. "Even though we attack the Korlu with all our strength in the morning, those invisible devils will ambush us and repel us as they have always done."

"You forget the new weapons which the white stranger who is Groro's ally

has had us make," objected the other. "He says that with them, we can crush the Korlu."

"But I do not understand the purpose of these hundreds of strange objects which the white stranger has had us make," complained the other.

"Neither do I," the second Krimian admitted, "but they must be weapons of great power."

Mark crept forward. There was nearly two feet of space between the two soldiers as they stood talking at the foot of the stair. And he had to go up that stair!

**D**AGGER gripped tightly in his hand, he stepped soundlessly between the two Krimians. They never stopped their earnest conversation, as he slipped between them in the shadowy dusk, and started up the stair.

Exultation rose inside Mark's breast, as he reached the floor of the great palace. Invisible as he was, he felt suddenly capable of achieving anything. He *rejoiced* now in his invisibility.

The dusky corridors of the palace had guards posted along them at intervals. Laughing inwardly at the ease of it, Mark stole past them like a phantom. He began searching through the shadowy halls of the building—searching for Hogrim.

His lips tightened as he thought of the agent of the Baltic Empire. Joseph Hogrim had to die, tonight. It might be murder for him to strike the man out of thin air—but that murder was necessary to avert world-tragedy.

Mark heard distant voices, and his pulse leaped as he recognized the throaty voice of Hogrim among them. He pushed toward the voices, and presently came to the entrance of a large chamber that was more brightly lit than any he had yet encountered, with many torches flaring from its stone walls.

He saw Joseph Hogrim. The agent of the Baltic Empire, his coarse red face flushed with excitement and his piggish little eyes glittering, was earnestly talking to the giant, copper-clad king Groro, and a half dozen of his captains.

Mark slipped noiselessly into the room. He stood there in the bright illumination, only a dozen feet from the group, secure in his invisibility.

"This, highness," Hogrim was telling Groro earnestly, "is the thing that will enable you after all these centuries to conquer and destroy the invisible Korlu."

"That thing?" growled Groro incredulously. The king's brutal face lowered dissatisfiedly at the object which Hogrim held up for inspection.

The thing was merely a small sphere of copper, as far as Mark Bradford could make out.

"I see not how that thing could kill anyone," Groro was continuing wrathfully. "Yet for weeks you have kept my people busy making the things under your instructions, without telling me how they were to be used."

"I did not tell anyone, because I didn't want the secret of my weapon to reach the Korlu's ears," Hogrim declared. "But since we attack the Korlu in the morning, I shall now explain its purpose."

Mark Bradford's heart pounded and he moved forward into the brightly lit chamber. He had to kill Hogrim *now*, before he explained his weapon to Groro!

Mark raised his dagger as he crept forward. One stroke, and Lua and her people would be safe from the Krim. America, the world, would be safe from the Baltic Empire!

"Look there!" shouted Groro suddenly, pointing straight at Mark. "One of the Korlu!"

MARK was stupefied for a moment. How *could* the Krimian king see him, when he was invisible?

Suddenly he understood what Groro was staring at. His dagger! The end of it, stained red with the blood of Rucho, was visible! That small, moving red stain had been unnoticeable in the dusky corridors he had traversed up till now, but in this brightly lit room it had at once attracted Groro's eyes.

"Kill him!" Groro was shouting in his bull voice, tugging out his sword.

Mark leaped desperately forward, trying to get past the Krimians to Hogrim. But two of the warriors had jumped into his path, their swords drawn.

He drove his knife savagely into the side of one of them, crimsoning its blade further.

"Use your new weapon upon this Korlu!" Groro was yelling to Hogrim.

But Joseph Hogrim, his coarse face gray with panic, was darting out of the room with a yell of alarm.

Before Mark could follow, Groro and his captains rushed upon him in a semi-circle, slashing furiously with their swords at the red-stained blade which betrayed his location.

Mark retreated swiftly, then found himself hemmed into a corner of the chamber. Groro and his men were closing in on him.

*Whizz!* One of the Krimians suddenly fell, clutching convulsively at something invisible that stuck from his back.

Again a bow twanged, from the doorway of the chamber. Another Krimian fell as a whizzing, invisible arrow tore between his shoulder-blades.

Groro and his remaining warriors spun around from Mark toward the door.

"Mark—this way!" cried a silver voice from the empty doorway.

"Lua!" he yelled, and burst through the bewildered Krimians toward her.

He bumped into her slim body in the apparently empty doorway. She seized his hand and they ran swiftly through the adjoining chamber. But Groro and his captains, running after them, were shouting the alarm.

"Guards—close the doors!" the king was roaring. "The Korlu are in the palace!"

"I followed you, Mark, in spite of your order!" Lua was crying breathlessly. "And I came just in time—"

As they rushed into another dusky chamber, a group of warriors burst into it from the opposite door. They slammed the door shut, ranging themselves across it with swords out.

Mark spun around. Through the door by which he and Lua had just entered this room, Groro and his captains were emerging in hot pursuit.

"They're in this room!" the king roared. "Keep the doors locked—call more guards!"

"We're trapped," Mark muttered hoarsely, his gaze desperately sweeping the room.

There were two high windows. But they were closed, like all the windows of the palace, by ornamental metal gratings.

Groro and his warriors were guarding both doors, secure in the knowledge that they had prisoned the invisible man and girl in this chamber. And there was an uproar of shouts and running feet as more guards came hastening here.

Mark leaped to a heavy chair, picked it up and with all his strength hurled it furiously at the grating. It crashed out through the light metal. As the Krimians saw the chair fly up from the floor and hurtle through the grating, they ran forward.

"They escape by the windows—cut them down!" roared Groro.

"Quick, Lua!" Mark yelled, and with a hand on her arm, pulled the invisible girl out through the opening.

They fell into the darkness outside, onto the surface of a stone court. Voices yelled out after them and arrows shot at random rattled like hail around them.

"Come on—to the lake!" Mark cried. "We'll have to go through the city streets."

THOSE streets were crowded tonight with Krimians, jostling each other under the light of flaring torches, excitedly preparing for the great attack in the morning.

As Mark and Lua ran into the streets, heading away from the dark palace toward the lake-front, guards poured out of the palace after them, shouting the alarm.

"Korlu are in the city!" yelled the guards.

The cry spread like wildfire along the crowded streets. Now Mark and Lua were running desperately between the throngs who could not see them.

Mark bumped into a scrawny little man who yelled in terror.

"Here they are!"

He shoved the man aside, but now soldiers further along the street were forming a solid line across the avenue, their arms hooked together and swords drawn.

"We can't get through that line!" Mark rasped. "We've got to go back."

"No—they've blocked us off!" Lua cried.

For behind them in the street, warriors had formed a similar human chain across the way, from wall to wall.

And now the warriors, skilled in this maneuver from past experience with the Korlu, were advancing, keeping their arms still hooked together, and their swords and spears level. The two lines moved toward each other, closing like

jaws on Mark and Lua.

Mark looked desperately around. The buildings on either side of them were a solid wall, as was the case all through the monolithic city. And they two, invisible still but doomed, stood alone here in this block between the closing lines of warriors.

"This way, Lua!" he cried, and dragged the gasping girl toward the door of a building on their right, a low, two-storied, flat-roofed one like all along the street.

The door was being hastily shut from inside, but Mark shoved it open. He heard a squeal of terror, and then his invisible fish smashed into the terrified face of the Krimian who had been hurriedly closing the door.

He and Lua ran through the dark, musty building and up a stair that Mark glimpsed in the corner. Another stair on the second floor led to a trapdoor through the roof. They emerged on the flat roof and stood for a moment, gasping for breath, under the light of the full moon.

"The roof!" the Krimian below was shouting to the guards. "The Korlu knocked me down and are on my roof!"

"This way, Lua!" Mark exclaimed, drawing the girl along. He had glimpsed the distant gleam of moonlit water.

She and Mark hastened in a stumbling run across the roof of that building, and on over the roofs of the next structures, heading toward the lake that lay at the end of this street.

Krimian warriors with spears and torches had burst up onto the roof on which they had first emerged. The shout of their leader reached Mark's ears.

"They'll make for the lake—this way!"

He heard the Krimians clanking after them. Then Mark and Lua reached the last roof on the street, and looked di-

rectly down on the moon-silvered lake that washed the sea-wall below.

"Dive, and swim along the shore for the canoe!" Mark cried.

Two invisible bodies arched through the air and struck the moonlit water with a loud splash.

MARK rose from the chill depths to find arrows hissing into the water around them, Krimians yelling from the rooftop above.

He saw Lua in the water beside him, as a queer hollow in the water. He swam toward her.

"Keep under water—swim down along the shore," he gasped. "They can spot us if we stay above."

They dived under the surface and swam with long strokes beneath the surface of the chill, silvery lake.

When they came up, gasping for breath, they were a good distance along the sea-wall of Krim. They could hear a blazing uproar of excitement back where they had jumped.

Then they glimpsed, close ahead, the tunnel-mouth in the sea-wall. On the shadowed water below was the long, shallow depression of the invisible canoe. In that depression, apparently sitting on the water, Peter Crellys waited, the only visible occupant of the unseen craft.

Crellys started violently as Mark's unseen hand grabbed the edge of the phantom craft. And as Mark hauled the dripping girl up into the canoe, Crellys clutched his arm.

"Bradford, it's you? My God, I thought they had you—"

"They nearly did," Mark gasped. "Fuor, get away, at once!"

Fuor muttered a brief order, and unseen paddles of the ghostly paddlers dug the water. The canoe shot out into the waters, Crellys, its only visible occupant, lying flat.

There was still an uproar of excitement at the shore of Krim, where Mark and Lua had dived into the lake. But no one appeared to sight the trail of their unseen craft as it moved rapidly out onto the lake.

As Krim and its flickering, bobbing torches dropped behind, Mark recovered his breath. He sat holding Lua's dripping, quivering figure in his arms.

"Did you get Hogrim?" Crellys asked tensely.

"I couldn't," Mark answered bitterly. "I made a mistake—forgot my bloody dagger—and Hogrim escaped. I saw the weapon he has devised for the Krim to use against the Korlu. It's a small copper sphere."

"What kind of a weapon could that be?" Peter Crellys asked puzzledly.

"I don't know," Mark said uneasily, "but it's something devilish, I'm sure of that. I wish to God I'd been able to get my knife between Hogrim's ribs."

When they reached the shore of the dark island of the Korlu, Etienne Moreau was waiting amid a throng of the invisible people. He sprang forward toward Crellys with a crow of delight.

"Bradford, you brought him back!" the little Frenchman cried. "And Hogrim?"

Mark briefly told what had happened. A silence fell over the throng of the Korlu as they heard.

The voice of Nurth broke the heavy, foreboding stillness.

"So the Krimians come at dawn?" the old chief cried. "Then we shall be waiting for them. Prepare for battle, my people!"

The Korlu answered with a fierce shout. And by the time Mark and Lua reached their city inside the hollow peak, its ramifying torchlit chambers were the scene of frenzied activity on the part of the unseen people.

"Lord, this is all unbelievable!"



gaped Peter Crellys, his haggard face stupefied. "And you, Bradford—as invisible as the rest—"

**M**ARK laid plans for the battle with Fuor, who was chief of the fighting men of Korlu.

"We shall let them land, when they come, and meet them in the forest," Fuor said confidently. "There we can take full advantage of our invisibility, and there we shall slay them with our arrows like rats, as we have always done."

"I hope so," Mark muttered. "They *mustn't* get the Shining God."

"They will not ever get the God, my son," Nurth's voice told him with calm certainty. "No impious hands shall ever be laid upon it, be sure of that."

Mark made no answer. He could not share the old chief's fervent religious conviction. He had a brooding feeling of impending disaster that he could not quell.

Moreau and Crellys protested vigorously when they learned that they were to remain inside the city in the peak, while Mark and Fuor led the resistance to the Krimians:

"It's not my style, to shirk my part of a fight," drawled Peter Crellys angrily.

"Nor mine either!" protested Moreau, his mustache twitching angrily. "*Parbleu*, what would my friends say if they heard that I had played such a sneaking part!"

"You've got to do it," Mark rasped. "You two are visible, and you'd give our positions away to the enemy."

But when he tried to get Lua to remain in the city also, she only laughed at him.

"No, Mark, I fight by your side," she told him, clinging fondly to him. "You shall see that we women of the Korlu can use bow and spear as well

as the men."

"I won't have it," he said troubledly, but he could not change her resolution.

Lookouts had been doubled all around the island. As the night passed, the preparations were finished, the invisible bows and spears and swords were issued to all Fuor's fighting men, who were gathered now outside the mountain.

Silently, the Korlu people waited their dawn of destiny. As the full moon rode across the heavens, Mark Bradford sat aside, with Lua nestled in his arms and sleeping as confidently as a cherished child. Kuro, her jaguar, was beside her.

His heart ached to the slim warmth of her pliant, unseen body against him, the feel of her soft hair against his cheek. Would she, and he, be alive when the coming day was ended? He tried to think so—and cursed the fate that had not permitted him to put an end to Joseph Hogrim's scheming existence.

The moon set. A pale light streaked the eastern heavens. And then, from away on the western shore of the island, there came through the misty dawn a weird, ululating call.

"The warning of our lookouts!" exclaimed Fuor's throbbing voice. "The enemy come!"

Lua awoke and asked drowsily, "What is it, Mark?" Kuro was growling.

"The Krimians are coming," he said steadily. "We must fight now for the Shining God."

## CHAPTER VIII

### Power of the God

**T**HE girl's lips clung fiercely to his for a moment, her arms warm around his neck.

"Mark, if we do not win—," she whispered.

"We'll win—we've got to!" he declared harshly. "Your people are fighting the battle of a whole world today, Lua, against Hogrim and his country."

"To the forest!" Fuor was shouting to the throng of unseen warriors. "You have your orders—remember now that we are fighting for the God."

"For the God!" yelled hundreds of fanatic voices from the throats of unseen men.

As the warriors started to move toward the forest, Mark saw Crellys and Moreau looking bewilderedly for him. He went to their side.

"Just wanted to say so long, in case anything slips up," Peter Crellys told him, gripping his invisible hand. "I wish you'd change your mind and let us go with you."

"*Oui*, just let Petaire and me within reach of that devil Hogrim, and we'll end his plots!" Moreau cried.

"You know it's impossible," Mark rapped. "Nurth, be sure that they stay with you inside the peak."

"I will be sure," Nurth replied calmly.

And Mark and Lua started into the forest with Fuor, at the head of the Korlu warriors. The tame jaguars marched with the men. Without need of orders, the Korlu spread out in a great line through the forest, facing the western shore. They waited there in the green gloom—hundreds of invisible warriors, with unseen jaguars, awaiting their enemy.

Mark could feel the pound of Lua's heart as she pressed against him. She had her bow strung and in her hand. Mark himself carried one of the long, invisible spears, and a sword was thrust in his belt. He felt Kuro tense beside him.

"See, they come!" hissed Fuor.

Out on the beach, hundreds of canoes were sweeping in, full of the brown, copper-armed Krimians.

Yelling like fiends, brandishing bows and swords, the men of Krim disembarked in thousands, forming up in solid masses on the beach.

Mark glimpsed the giant king Groro shouting orders from in front of their formation. And he saw Joseph Hogrim's stocky, khaki figure, in one of another bunch of canoes that were now sweeping in toward a landing.

"Try to kill Hogrim with your arrows, if you can possibly do it," he rasped to Lua.

"Yes, Mark," she answered calmly.

But Hogrim, when he landed, stayed well behind the solid copper ranks of the Krim soldiery. He was cannily keeping in the background where it was safe.

Groro's bull voice shouted an order. With a savage shout, the Krimian masses began to advance into the forest in a rapid trot.

MARK saw them coming on, a wave of fierce brown faces and gleaming copper weapons, until they were only a hundred yards away.

"Kill!" shouted Fuor in a great voice.

The forest all around Mark suddenly resounded with the twang of bowstrings and whizz of arrows, a deadly flight of invisible missiles.

The arrows hailed into the advancing Krimian soldiery, and scores of them crumpled all along their line. The terrific fire of unseen arrows slowed their advance.

Like a singing of death, the Korlu bows continued to twang, smiting down the brown enemy. And though the Krimian archers loosed arrows in return, they shot blindly forward at an enemy they could not see. The advance

wavered almost to a halt. And the unseen jaguars leaped snarling on the brown men.

"They are beaten!" Fuor cried triumphantly.

"Look — the red-faced one!" Lua's voice rang in alarm. "He gives orders—"

Joseph Hogrim was yelling to the Krimians, from his position safely behind their ranks.

"Throw the new weapons now!" Hogrim yelled.

Mark Bradford tensed as he saw the brown warriors reach into haversacks of skin slung from their shoulders, and draw out copper spheres like that he had seen in Hogrim's possession.

The Krimians flung the spheres forward with all their strength, and they struck the ground and trees all around Mark and his invisible warriors. And each sphere, as it struck, exploded into a thick, bursting cloud of greasy black smoke.

"Smoke bombs!" Mark yelled. "So that's what Hogrim had them make—but why?"

"Hold fast and fight!" Fuor ordered through the strangling black clouds. "The smoke will go!"

Already the heavy, greasy black clouds were drifting away from the choking Korlu. The Krimians were again advancing with fierce shouts.

The smoke lifted. But Mark's heart froze as he looked around at his companions, at the raging jaguars.

They had become partly *visible!* The greasy black smoke had deposited a thin coat of soot on their invisible bodies, making them appear as shadowy black phantoms to the eye!

"Now we can see the dogs!" roared Groro's bull voice exultantly. "Advance—slay them all!"

From the hosts of Krimians, arrows shot through the forest in thick flights.

And the archers could see the Korlu to shoot at now, for the first time.

The Korlu, bewildered by their sudden semi-visibility, tried to rub the greasy black soot from their skins. But they only smeared it in, and made themselves more visible.

"We are lost!" Lua cried heartbrokenly. "The red-faced one's trick has taken our only advantage—"

"Fight on!" roared Fuor furiously, his massive features visible to Mark for the first time from the smear of black on them.

But the Korlu, outnumbered twenty to one by their opponents, and deprived of their supreme advantage of invisibility, were being driven further and further back through the forest, and were falling in dozens from Krimian arrows.

Mark Bradford felt cold hopelessness in his heart. This battle could only end in one way. Already the Korlu had been driven out of the forest, into the clear light of the open fields outside the black peak. Most of the tame jaguars of the Korlu had already been speared to death.

"Hold them here!" Mark yelled to his semi-visible companions.

"For the God!" shouted the desperate Korlu, and with spears and swords, flung themselves forward into hand-to-hand conflict with their enemies.

It was sword against sword and spear against spear in the open sunlight, then. A mad chaos of battle in which Mark Bradford fought like a crazy man.

He kept Lua behind him as much as he could, stabbing first with the long spear, and when it was slashed in two, jerking out his invisible sword and hacking against the yelling hosts of Krimians who faced him.

**M**ORE of Hogrim's smoke-bombs crashed and engulfed them all in

clouds of greasy black vapor. The passing smoke left the Korlu more solidly visible than ever.

Mark saw Fuor go down, stabbed by the spears of three Krimians. He saw Groro, the giant king, whirling a tremendous sword and shouting with bestial ferocity. And he glimpsed the raging jaguar Kuro riddled with arrows.

"We are lost, Mark!" cried Lua, a slim, sooty phantom clinging to his side. "This soot upon our skin that makes us visible—it has doomed us!"

"Soot?" cried Mark Bradford, a blinding, white-hot idea exploding in his brain. "My God, why didn't I think of it? Soot is *carbon!* There's a way for us to win yet!"

He raised his voice in a hoarse yell over the clashing roar of combat, a cry of command to the Korlu.

"To the peak!" he cried.

"It will do us no good to retreat inside the mountain!" Lua exclaimed. "They will force their way in and slaughter us in the caves—"

"But I've thought of a way to nullify Hogrim's smoke-bombs!" Mark shouted. "Come on!"

The Korlu had heard his command and they bunched together and backed fighting toward the entrance carved in the side of the black mountain.

As Mark and his warriors backed into the entrance, he yelled for the portcullis grating to be lowered. But before the grating could be dropped, the Krimians made a headlong charge and forced their way a little inside the tunnel.

Mark and his sooty horde fought like madmen to push the Krimians back out of the tunnel. And the young American now found Etienne Moreau and tall Peter Crellys at his side, wielding invisible swords in the fight with deadly effect.

"That devil Hogrim is winning!"

Moreau was crying fiercely. "Those cursed smoke-bombs of his—they've taken the Korlu's only advantage away."

"If we can drop the grating to hold them out a few minutes, we can still win!" Mark yelled. "I can overcome Hogrim's weapon, if we can get that few minutes' time."

"*Dieu*, we can't drop the grating!" sobbed Moreau, fiercely slashing at shouting brown fiends as they came on. "They're too many for us!"

Groro, the huge king of Krim, was pushing toward the forefront of the battle, yelling in a booming roar.

"On, men of Krim—the Shining God is in our grasp!"

"If I could scrag that bird, it would discourage the rest a little," rasped Peter Crellys.

And abruptly, the lanky, crippled Englishman leaped straight forward through the thickest of whirling Krimian swords, toward the roaring, bull-framed king.

"*No*, Crellys!" Mark screamed, but too late to halt the Englishman's heroic, suicidal rush.

Four Krimian blades stabbed into Peter Crellys' body as he charged headlong into the brown warriors. But even those tearing swords could not halt his terrific rush.

He burst through them like a human projectile toward Groro. The huge king, with a loud yell, swung up his great blade. But before it could descend, with a superhuman, dying effort, Crellys thrust his invisible sword to the hilt into Groro's breast.

THE great king and his slayer toppled dead together. And a yell of dismay went up from the Krimians as they saw their king fall.

"*Now*, men—push them back out!" cried Mark.

The Korlu surged forward in a terrific assault. And the momentarily dismayed Krimians gave back a little.

*Clang!* The heavy portcullis grating shot down in its grooves and temporarily barred the way to the raging hosts of brown warriors.

"Get trees and batter down the grating!" shouted Joseph Hogrim's throaty voice, somewhere outside.

"Aye, avenge our king and seize the God!" screamed thousands of Krimian voices.

*Crash!* A huge tree-trunk battered into the grating from outside, reverberating through the tunnels and caves of the labyrinthine city.

"They'll be inside in a minute!" Lua cried wildly.

"And Crellys is dead!" gasped Etienne Moreau. "Name of God, he died like a hero!"

Mark Bradford's voice rose in a fierce, commanding yell over the crashing boom of the battering-ram and the raging cries of the brown fiends outside.

"Down to the chamber of the God, men of Korlu!" he cried in a great voice to his sooty, phantom followers. "The rays of the God will make the soot on us invisible, and we will hold the advantage once more!"

"But it takes hours for the God to make anything invisible!" Lua cried. "And the Krimians will be in upon us in a few moments!"

"It'll take only a few *minutes* for the God to make the soot on us invisible!" Mark shouted, his face flaming. "Soot is *carbon*, Lua! And the rays of the God make any carbon invisible in only a few moments—remember how my diamond became invisible in a minute, down there?"

"It is a chance!" cried the thin, shrill voice of old Nurth. "To the God!"

The Korlu, a horde of dazed, sooty

ghosts, started through the labyrinthine caves and tunnels, pouring wildly down through the subterranean spaces toward the chamber of their shining deity.

The portcullis grating was already bending inward under the crashing assault of the Krimian battering-ram. And the loud voice of Joseph Hogrim could be heard yelling encouragement and orders to the blood-lusting brown warriors.

When he heard that voice, Etienne Moreau's face contorted in rage and he would have remained behind, but Mark grabbed the little Frenchman and dragged him along with Lua and himself, at the head of the Korlu horde.

They poured down into the colossal cavern of the God. The whole horde of sooty, phantom warriors pressed into the vast rock chamber, at the center of which flamed the great radioactive ovoid, drenching them with its shaking, terrible radiance, burning in dazzling and unchanging splendor as though possessed of supernal life.

"*Ciel!*" cried Moreau hoarsely, his face wild in the glare. "The Shining God—the great secret of invisibility—and Hogrim will secure it unless—"

A tremendous, reverberating clang echoed through the caves and tunnels from above. And close on its heels came a roar of jubilant voices, advancing rapidly down toward them.

"They have broken the grating down, Mark!" cried Lua. "They come after us—we are too late!"

"No!" yelled Mark Bradford with flaring exultation. "See—the rays act!"

The soot that smeared their skins was, in the moment that they stood there, becoming swiftly invisible! The horde of shadowy Korlu warriors in the vast chamber, like Mark and Lua, were fading rapidly from view, as the rays of the blazing ovoid acted upon

the soot whose carbon was peculiarly susceptible to their power.

Like the quick vanishing of a dream-army, the Korlu warriors and Mark and Lua and old Nurth became misty and disappeared from sight. And little Etienne Moreau was the only man left visible in the vast, glaring cavern.

THE distant roar of triumph of the Krimians was loud as the brown warriors surged eagerly down through the tunnels toward this cavern. And the throaty shout of Joseph Hogrim, urging them on, rose above their wild, exultant din.

"Get back against the walls of the cavern!" Mark shouted to his invisible followers. "Let them enter—and then smite with spear and arrow when I give the word!"

"I'll kill that devil Hogrim myself!" Etienne Moreau cried, waving his blood-stained, invisible sword, his eyes panther-fierce. "I'll do that—for Crellys."

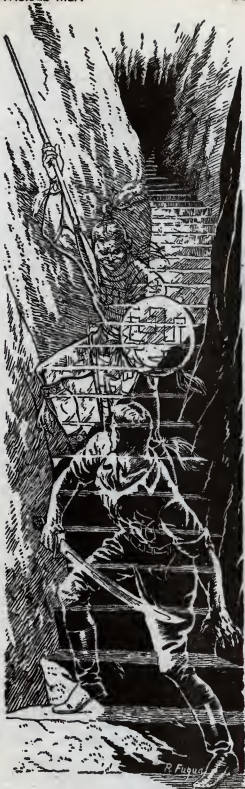
"Get back there behind that ledge, Moreau!" Mark ordered, pushing the little Frenchman bodily back behind a corner of rock where he would be temporarily hidden from sight.

The Korlu had swiftly obeyed Mark's order and had backed against the walls of the giant cave. Bows were strung, spears and javelins tensely raised. An invisible horde, waiting in ambush in the chamber of their deity!

Then, with a great roar, the Krimians burst in solid masses into the chamber. They yelled wildly as their eyes fell upon the blazing splendor of the dazzling ovoid, flaring at the center of the apparently empty cavern.

"The Shining God is ours!" they shouted in mad triumph. "The Korlu have fled!"

Mark saw the stocky khaki figure of Joseph Hogrim push through the crowd



"To the death!" yelled Bradford

toward the towering, radiant mass.

"The God at last!" Hogrim cried excitedly, his red face glistening in the glare of the awful ovoid. "The great secret—in my hands!"

"Now—*strike!*" rang Mark Bradford's high, fierce yell to his invisible followers.

And from the unseen Korlu around the mighty cavern's walls, a terrific shower of arrows, spears and javelins poured into the Krimian hordes gathered around the God.

The brown warriors were scythed down in scores by the unseen missiles. And a wild cry of terror broke from them as they milled, bewildered by the unseen death.

"The Korlu are invisible again—they have tricked us!" the Krimians cried.

"Use your smoke-bombs again!" yelled Hogrim hoarsely.

Some of the Krimians obeyed his order and flung the copper spheres at random. They burst into clouds of greasy black smoke.

But that smoke wavered and vanished in mid-air, as the drenching radiance of the Shining God swiftly made each carbon particle in it invisible!

"The new weapon is useless!" howled a fear-mad Krimian captain. "Flee—we are trapped!"

And as the brown warriors surged in frantic flight toward the tunnels leading upward from the cavern, Mark Bradford and his invisible followers leaped forward with swords raised.

The mighty cavern of the glaring God became a scene of nightmare battle and massacre as the Korlu, invisible ghosts wielding deadly, phantom weapons, sprang ferociously upon their bewildered brown enemies.

The Krimians had but one frantic thought—to flee from this place, from these enemies they could not see. But invisible swords and spears of unseen

men were killing them now by hundreds, as they sought wildly to escape from the cavern.

Mark Bradford, hacking and slashing his way through the fleeing, fear-crazed brown warriors, was trying to reach Joseph Hogrim. The Baltic spy, terror on his red face, had pushed through his screaming followers into one of the tunnels leading upward.

But Mark glimpsed Etienne Moreau forcing furiously after Hogrim. The little Frenchman's eyes were blazing and he was wielding his sword like a madman as he pursued his enemy.

"Moreau—stay back!" Mark yelled, but Hogrim and his pursuer vanished in the tunnel at that moment.

"**K**ILL, men of Korlu!" Nurth's shrill voice was ringing over the roar and din of combat. "Let no one of the brown dogs escape!"

A dreadful, one-sided slaughter began, that surged up from the glaring chamber of the God through all the labyrinthine caves and tunnels of the city. A massacre of fleeing, fear-mad Krimians by the enraged and invisible Korlu.

Mark had no chance of controlling his unseen followers. They were crazed for vengeance, and they raged and slew through the maze of caverns and passages, with which each of them was familiar, like a horde of blood-mad ghosts.

Mark had found Lua and kept her close behind him as he climbed upward with his ferocious followers through the caverns. When he reached the great upper hall of the city, he found it already littered with dead Krimians.

The surviving brown warriors were fleeing in terror outside, stumbling through the forest toward their canoes. And the invisible Korlu were pursuing them, striking them down from all sides.

Few would reach the canoes, Mark saw.

"We win!" Nurth was crying in triumph. "Victory has been given us—by the power of the God!"

"Where's Hogrim?" Mark Bradford cried tensely. "He can't have escaped, surely—"

"Here, Mark!" Lua's voice called anxiously to him.

She pulled him toward a shadowy corner of the great hall, in which lay a score of scattered dead Krimians.

Beyond those dead, Joseph Hogrim lay flat upon his back. His heavy face was horribly purple and congested, his distended, protruding eyes staring emptily upward.

And beside the dead Baltic spy, little Etienne Moreau crouched, bleeding from a dozen terrible wounds, but with a ghostly smile on his bloodless face and in his fading eyes as he looked up at them unseeingly.

"Moreau!" yelled Mark hoarsely, stooping beside the little Frenchman.

"I got—Hogrim," muttered Moreau in an almost inaudible whisper. "My sword broke—but I got my hands on his throat, and didn't let go."

Lua was weeping. And tears were in Mark's own eyes as he knelt by the dying man.

"Crellys and I—done for," Moreau whispered. "But the secret of the God will be safe with you, Bradford—will be safe with America, to preserve the world's peace."

His head sagged. But his lips moved a moment more, and Mark just heard his faint whisper.

"*C'est loin de France,*" he murmured. "This is far from France—"

And with that whisper, the little Frenchman's head hung limp, his body softly relaxing.

Mark, a tight lump in his throat, held the sobbing, shuddering form of Lua close in his arms. They sat thus for

minutes before the voice of Nurth came from beside them.

"It is over," said the unseen Korlu ruler throbbingly. "Only a handful of the Krimians escaped—and it will be very long, if ever before they venture to attack us again. And even if they do, they will not now have any stranger to devise new weapons for them. My people are safe again.

"And we owe victory and safety to you!" the old man told Mark fervently. "Anything you wish from us is yours—yes, even the rule of my people, if you want it."

"I want nothing but to take back to my people the secret that will keep my country safe," Mark Bradford told him. "That—and Lua."

And he asked anxiously of the unseen girl in his arms, "Will you go with me, Lua?"

Warm, invisible arms tightened around his neck in answer.

"Anywhere, Mark! Anywhere!"

## CHAPTER IX

### Epilogue

THE Secretary of War looked up from his desk as an orderly clicked his heels.

"Agent Bradford is here, sir."

The square, powerful face of the Secretary lighted up. And he rose to his feet and hastily stepped across the big office toward the man and the girl who were entering.

Mark Bradford was dressed in civilian clothes. His muscular figure was stiff at attention, his dark, virile face respectful, as he saluted. But his black eyes were glowing.

The girl beside him was dark-haired, white-skinned, with clear, lovely features and eager dark eyes. Even in her simple white silk suit, there was a trace of something strange in her bearing,



something lithe and wild and free.

Mark, even at this moment, could not keep his eyes from resting proudly on her. But he hastily recaptured his attention, as the keen-eyed man before him shook his hand.

"Bradford, you know how glad I am to see you!" the Secretary was saying. "But I thought, from what you cabled in your first report, that you and your wife would be invisible!"

Mark grinned. "We were invisible, sir—but we grew out of it. You see, it took us weeks to travel through the jungle from the plateau back to civilization, by dugout canoe down the creeks and rivers. And in those weeks, the new cells that grew in our bodies gradually made us visible. So that before we reached civilization, I was able to see Lua, for the first time."

And fondly, his arm went around the waist of the slim, eager girl.

"You cabled that you'd succeeded, Bradford," said the Secretary tensely. "That you were bringing back the great secret."

Mark reached into his pocket. And he took from it a thing the size of a baseball, a chunk of rock blazing with dazzling radiance like a miniature sun.

"This," he said quietly, "is a fragment of the Shining God. Lua's people allowed me to bring it out. By analyzing its radiation, our scientists can easily learn how to produce such radiation synthetically, and we'll be able to make our whole army, navy and air-force invisible, if we have to."

He held it out to the Secretary. "Take it, sir—it's wrapped in sheet-lead. But it's made the lead invisible—it made the suitcase I carried it in invisible, too."

Gingerly, wonderingly, the Secretary took the radiant little mass into his hand. Then he touched a button.

To the uniformed man who answered, he handed the fragment of the Shining God.

"Lock this up in the vaults," he ordered. "We shall be getting a committee of scientists here to analyze and duplicate its radiation, but until then, I want it safe."

And then the cabinet-member turned back to Mark and Lua.

"I want to add, sir," Mark said steadily, "that without the aid of Peter Crellys and Etienne Moreau, I'd never have succeeded."

"I understand, Bradford," the Secretary nodded. "And I want to hear your whole story. But not here—someone else is waiting to hear it."

"Someone else?" Mark repeated surprisedly.

The Secretary smiled. "Yes—President Roosevelt."

Two hours later, when the cabinet-member and Mark and Lua stepped out of the White House into the bright Washington sunlight, Mark drew a long breath.

"He made me do all the talking!" he exclaimed. "But what he said when we left—that made everything I went through to get the secret seem more than worth while."

The Secretary nodded sober agreement. And thoughtfully, he repeated the words still ringing in their ears:

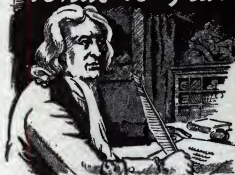
"The secret of the Shining God will remain in our military archives, unknown to the world. It will be a tremendous weapon, if ever a time arrives when America needs it. Let us pray God that that time never comes."

READ AMAZING STORIES EACH MONTH

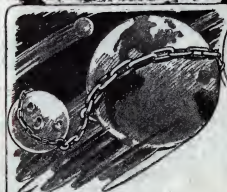
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# RIDDLES OF SCIENCE

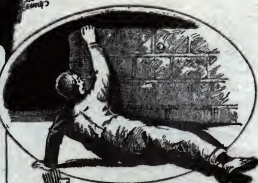
## What is Gravitation?



**A** FALLING APPLE IS SAID TO HAVE CAUSED NEWTON TO ASK HIMSELF THAT QUESTION AND REFORMULATED HIS LAW OF GRAVITY IN 1687. BUT SCIENCE HAS FAILED TO DEFINE IT TO THIS DAY . . .

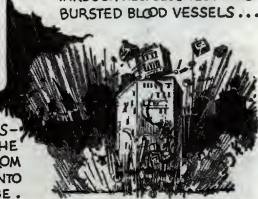


**I**N SPITE OF CENTRIFUGAL FORCE, WHICH SHOULD HURL THE MOON AWAY INTO SPACE, IT IS CHAINED TO EARTH BY GRAVITY .



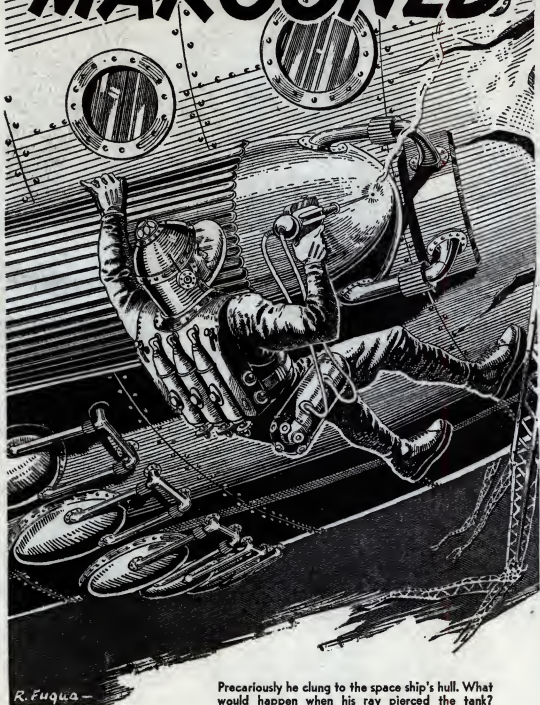
**I**F IT WERE SUDDENLY INCREASED IN INTENSITY, HUMANS WOULD CRUMPLE UNDER THEIR OWN WEIGHT, THERE TO DIE THROUGH HELPLESSNESS IF NOT BURSTED BLOOD VESSELS . . .

**I**F THIS FORCE WERE TO DISAPPEAR, BUILDINGS AT THE EQUATOR WOULD ERUPT FROM THEIR FOUNDATIONS, FLUNG INTO SPACE BY THE SPINNING GLOBE .



The force of gravity has always presented to physicists one of the greatest riddles of science to resist their prying efforts at analysis. What gravity is has never been definitely determined. The attraction of mass holds the planets in their orbits, attracts all objects to a common center, and although it exerts its force through space itself, with no known limits, it also acts individually on every object, from a tiny molecular vortex of matter, to the most colossal suns in space. What is this force? Is it electrical, magnetic, spacial, etheric, or some unknown manifestation of matter? Science seeks the answer avidly, for what that knowledge might mean—space travel, cheap power, a tremendous lightening of earth's burdens; all are goals certainly worth working for.

# MAROONED



R. Fuqua -

Precariously he clung to the space ship's hull. What would happen when his ray pierced the tank?



# OFF VESTA

By  
**ISAAC ASIMOV**

There was air for only three days, but water to last a year. Warren Moore attempted an impossible plan—and won!

## CHAPTER I

### Wreck of the *Silver Queen*

“WILL you please stop walking up and down like that,” said Warren Moore from the couch, “it won’t do any of us any good. Think of our blessings; we’re airtight, aren’t we?”

Mark Brandon whirled and ground his teeth at him. “I’m glad you feel happy about that,” he spat out viciously. “Of course you don’t know that our air-supply will last only three days.” He resumed his interrupted stride with a defiant air.

Moore yawned and stretched, assumed a more comfortable position, and replied, “Expending all that energy

will only use it up faster. Why don’t you take a hint from Mike here. He’s taking it easy.”

“Mike” was Michael Shea, late a member of the crew of the *Silver Queen*. His short, squat body was resting on the only chair in the room and his feet were on the only table. He looked up as his name was mentioned, his mouth widening in a twisted grin.

“You’ve got to expect things like this to happen sometimes,” he said. “Bucking the asteroids is risky business. We should’ve taken the hop. It takes longer, but it’s the only safe way. But no, the Captain wanted to make the schedule; he *would* go through,” Mike spat disgustedly, “and here we are.”

“What’s the ‘hop’?” asked Brandon.

“Oh, I take it that friend Mike means

that we should have avoided the asteroid belt by plotting a course outside the plane of the ecliptic," answered Moore. "That's it, isn't it, Mike?"

Mike hesitated and then replied cautiously, "Yeah—I guess that's it."

Moore smiled blandly and continued, "Well, I wouldn't blame Captain Crane too much. The repulsion screen must have failed five minutes before that chunk of granite barged into us. That's not his fault, though of course we ought to have steered clear instead of relying on the screen." He shook his head meditatively, "The *Silver Queen* just went to pieces. It's really miraculously lucky that this part of the ship remained intact, and what's more, air-tight."

"You've got a funny idea of luck, Warren," said Brandon. "Always have for as long as I've known you. Here we are in a tenth part of a spaceship, comprising only three *whole* rooms, with air for three days, and no prospect of being alive after that. And you have the infernal gall to prate about luck."

"Compared to the others who died instantly when the asteroid struck, yes," was Moore's answer.

"You think so, eh? Well, let me tell you that instant death isn't so bad compared with what we're going to have to go through. Suffocation is a damned unpleasant way of dying."

"We may find a way out," Moore suggested hopefully.

"Why not face facts!" Brandon's face was flushed and his voice trembled. "We're done, I tell you! Through!"

Mike glanced from one to the other doubtfully and then coughed to attract their attention, "Well, gents, seeing that we're all in the same fix, I guess there's no use hogging things." He drew a small bottle out of his pocket that was filled with a greenish liquid. "Grade A *Jabra* this is. I ain't too proud to share and share alike."

Brandon exhibited the first signs of pleasure for over a day, "Martian *Jabra* water. Why didn't you say so before?"

But as he reached for it, a firm hand clamped down upon his wrist. He looked up into the calm blue eyes of Warren Moore.

"Don't be a fool," said Moore, "there isn't enough to keep us drunk for three days. What do you want to do? Go on a tear now and then die cold sober? Let's save this for the last six hours when the air gets stuffy and breathing hurts—then we'll finish the bottle among us and never *know* when the end comes, or *care*."

Brandon's hand fell away reluctantly, "Damn it, Warren, you'd bleed ice if you were cut. How can you think straight at a time like this?" He motioned to Mike and the bottle was once more stowed away. Brandon walked to the porthole and gazed out.

MOORE approached and placed a kindly arm over the shoulders of the younger man. "Why take it so hard, man?" he asked, "you can't last at this rate. Inside of twenty-four hours you'll be a madman if you keep this up."

There was no answer. Brandon stared bitterly at the globe that filled almost the entire porthole, so Moore continued, "Watching *Vesta* won't do you any good, either."

Mike Shea lumbered up to the porthole, "We'd be safe if we were only down there on *Vesta*. There's people there. How far away are we?"

"Not more than three or four hundred miles judging from its apparent size," answered Moore. "You must remember that it is only two hundred miles in diameter."

"Three hundred miles from salvation," murmured Brandon, "and we might as well be a million. If there were

only a way to get ourselves out of the orbit this rotten fragment adopted. You know, manage to give ourselves a push so, as to start falling. There'd be no danger of crashing if we did, because that midget hasn't got enough gravity to crush a creampuff."

"It has enough to keep us in the orbit," retorted Brandon. "It must have picked us up while we were lying unconscious after the crash. Wish it had come closer; we might have been able to land on it."

"Funny place, Vesta," observed Mike Shea. "I was down there two-three times. What a dump! It's all covered with some stuff like snow only it ain't snow. I forget what they call it."

"Frozen carbon dioxide?" prompted Moore.

"Yeah, dry ice, that carbon stuff, that's it. They say that's what makes Vesta so shiny."

"Of course! That would give it a high albedo."

Mike cocked a suspicious eye at Moore and decided to let it pass. "It's hard to see anything down there on account of the snow, but if you look close," he pointed, "you can see a sort of gray smudge. I think that's Bennett's dome. That's where they keep the observatory. And there's Calorn's dome up there. That's a fuel station, that is. There's plenty more, too, only I don't see them."

He hesitated and then turned to Moore, "Listen, boss, I've been thinking. Wouldn't they be looking for us as soon as they hear about the crash? And wouldn't we be easy to find from Vesta seeing we're so close?"

Moore shook his head, "No, Mike, they won't be looking for us. No one's going to find out about the crash until the *Silver Queen* fails to turn up on schedule. You see, when the asteroid

hit, we didn't have time to send out an SOS." He sighed. "And they won't find us down there at Vesta, either. We're so small that even at our distance they couldn't see us unless they knew what they were looking for, and exactly where to look."

"Hmm," Mike's forehead was corrugated in deep thought, "then we got to get to Vesta before three days are up."

"You've got the gist of the matter, Mike. Now, if we only knew how to go about it, eh?"

Brandon suddenly exploded, "Will you two stop this infernal chitter-chatter and do something? For God's sake, do something."

Moore shrugged his shoulders and without answer, returned to the couch. He lounged at ease, apparently carefree, but there was the tiniest crease between his eyes which bespoke concentration.

THERE was no doubt about it; they were in a bad spot. He reviewed the events of the preceding day for perhaps the twentieth time.

After the asteroid had struck, tearing the ship apart, he'd gone out like a light; for how long he didn't know, his own watch being broken and no other timepiece available. When he came to, he found himself, along with Mark Brandon, who shared his room, and Mike Shea, a member of the crew, sole occupants of all that was left of the *Silver Queen*.

This remnant was now careening in an orbit about Vesta. At present, things were fairly comfortable. There was a food supply that would last a week. Likewise there was a regional gravitator under the room that kept them at normal weight and would continue to do so for an indefinite time, certainly for longer than the air would last. The lighting system was less satisfac-

tory but had held on so far.

There was no doubt, however, where the joker in the pack lay. Three days air! Not that there weren't other disheartening features. There was no heating system (though it would take a long time for the ship to radiate enough heat into the vacuum of space to render them too uncomfortable). Far more important was the fact that their part of the ship had neither a means of communication nor a propulsive mechanism. Moore sighed; one fuel jet in working order would fix everything, for one blast in the right direction would send them safely to Vesta.

The crease between his eyes deepened. What was to be done? They had but one space-suit among them, one heat-ray, and one detonator. That was the sum total of space appliances after a thorough search of the accessible parts of the ship. A pretty hopeless mess, that.

Moore shrugged his shoulders, rose and drew himself a glass of water. He swallowed it mechanically, still deep in thought, when an idea struck him. He glanced curiously at the empty cup in his hand.

"Say, Mike," he said, "what kind of water supply have we? Funny that I never thought of that before."

Mike's eyes opened to their fullest extent in an expression of ludicrous surprise. "Didn't you know, boss?"

"Know *what*?" asked Moore impatiently.

"We've got all the water there was," he waved his hand in an all-inclusive gesture. He paused, but as Moore's expression showed nothing but total mystification, he elaborated, "Don't you see? We've got the main tank, the place where all the water for the whole ship was stored." He pointed to one of the walls.

"Do you mean to say that there's a

tank full of water adjoining us?"

Mike nodded vigorously, "Yep! Cubic vat a hundred feet each way. And she's three-quarters full."

Moore was astonished, "750,000 cubic feet of water." Then suddenly, "Why hasn't it run out through the broken pipes?"

"It only has one main outlet, which runs down the corridor just outside this room. I was fixing that main when the asteroid hit and had it shut off. After I came to I opened the pipe leading to our faucet, but that's the only outlet open now."

"Oh." Moore had a curious feeling way down deep inside. An idea had half-formed in his brain, but for the life of him he could not drag it into the light of day. He knew only that there was something in what he had just heard that had some important meaning but he just couldn't place his finger on it.

Brandon, meanwhile, had been listening to Shea in silence, and now he emitted a short, humorless laugh, "Fate seems to be having its fill of fun with us, I see. First, it puts us within arm's reach of a place of safety and then sees to it that we have no way of getting there.

"Then she provides us with a week's food, three days air, and a *year's supply of water*. A year's supply, do you hear me? Enough water to drink and to gargle and to wash and to take baths in and—and to do anything else we want. Water—damn the water!"

"Oh, take a less serious view, Mark," said Moore in an attempt to break the younger man's melancholy. "Pretend we're a satellite of Vesta (which we are). We have our own period of revolution and of rotation. We have an equator and an axis. Our 'north pole' is located somewhere toward the top of the porthole, pointing toward Vesta and our 'south' sticks out away from Vesta

through the water tank somewhere. Well, as a satellite, we have an atmosphere, and now, you see, we have a newly discovered ocean.

"And seriously, we're not so badly off. For the three days our atmosphere will last, we can eat double rations and drink ourselves soggy. Hell, we have water enough to throw away—"

The idea which had been half-formed before suddenly sprang to maturity and was nailed. The careless gesture with which he had accompanied the last remark was frozen in midair. His mouth closed with a snap and his head came up with a jerk.

But Brandon, immersed in his own thoughts, noticed nothing of Moore's strange actions. "Why don't you complete the analogy to a satellite," he sneered, "or do you, as a Professional Optimist, ignore any and all disagreeable facts? If I were you, I'd continue this way." Here he imitated Moore's voice, "The satellite is at present habitable and inhabited but due to the approaching depletion of its atmosphere, in three days, is expected to become a dead world."

"Well, why don't you answer? Why do you persist in making a joke out of this? Can't you see—*what's the matter?*"

THE last was a surprised exclamation and certainly Moore's actions did merit surprise. He had arisen suddenly and after giving himself a smart rap on the forehead, remained stiff and silent, staring into the far distance with gradually narrowing eyelids. Brandon and Mike Shea watched him in speechless astonishment.

Suddenly Moore burst out, "Ha! I've got it. Why didn't I think of it before?" His exclamations degenerated into the unintelligible.

Mike drew out the *Jabra* bottle with

a significant look, but Moore waved it away impatiently. Whereupon Brandon, without any warning, lashed out with his right, catching the surprised Moore flush on the jaw and toppling him.

Moore groaned and rubbed his chin. Somewhat indignant, he asked, "What was the reason for that?"

"Stand up and I'll do it again," shouted Brandon, "I can't stand it any more. I'm sick and tired of being preached at, and having to listen to your Pollyanna talk. *You're* the one that's going daffy."

"Daffy, nothing! Just a little over-excited, that's all. Listen, for God's sake. I think I know a way—"

Brandon glared at him balefully, "Oh, you do, do you? Raise our hopes with some silly scheme and then find it doesn't work. I won't take it, do you hear? I'll find a real use for the water; drown you—and save some of the air besides."

Moore lost his temper, "Listen, Mark, you're out of this; I'm going through alone. I don't need your help and I don't want it. If you're that sure of dying and that afraid, why not have the agony over. We've got one heat-ray and one detonator, both reliable weapons. Take your choice and kill yourself. Shea and I won't interfere."

Brandon's lip curled in a last weak gesture of defiance and then suddenly he capitulated, completely and abjectly, "All right, Warren, I'm with you. I—I guess I didn't quite know what I was doing. I don't feel well, Warren. I—I—"

"Aw, that's all right, boy." Moore was genuinely sorry for him. Take it easy. I know how you feel. It's got me, too. But you mustn't give in to it. Fight it, or you'll go stark, raving mad. Now you just try and get some sleep and leave everything to me. Things will



turn out right, yet."

Brandon, pressing a hand to an aching forehead, stumbled to the couch and tumbled down. Silent sobs shook his frame while Moore and Shea remained in embarrassed silence nearby.

## CHAPTER II

### A Tough Job

AT last, Moore nudged Mike. "Come on," he whispered, "let's get busy. We're going places. Airlock 5 is at the end of the corridor, isn't it?" Shea nodded and Moore continued, "Is it airtight?"

"Well," said Shea after some thought, "the inner door is, of course, but I don't know anything about the outer one. For all I know it may be a sieve. You see, when I tested the wall for airtightness, I didn't dare open the inner door, because if there *was* anything wrong with the outer one—blooey!" The accompanying gesture was very expressive.

"Then it's up to us to find out about that outer door right now. I've got to get outside some way and we'll just have to take chances. Where's the spacesuit?"

He grabbed the lone suit from its place in the cupboard, threw it over his shoulder and led the way into the long corridor that ran down the side of the room. He passed closed doors behind whose air-tight barriers were what once had been passenger quarters but which were now merely cavities, open to space. At the end of the corridor was the tight-fitting door of Airlock 5.

Moore stopped and surveyed it approvingly, "Looks all right," he observed, "but of course you can't tell what's outside. God, I hope it'll work." He frowned, "Of course we could use the entire corridor as an airlock, with

the door to our room as the inner door and this as the outer door but that would mean the loss of half our air-supply. We can't afford that—yet."

He turned to Shea, "All right, now. The indicator shows that the lock was last used for entrance, so it should be full of air. Open the door the tiniest crack, and if there's a hissing noise, shut it quick."

"Here goes," and the lever moved one notch. The mechanism had been severely shaken up during the shock of the crash and its former noiseless workings had given way to a harsh, rasping sound; but it was still in commission. A thin black line appeared on the left hand side of the lock, marking where the door had slid a fraction of an inch on the runners.

There was no hiss! Moore's look of anxiety faded somewhat. He took a small pasteboard from his pocket and held it against the crack. If air were leaking that card should have held there, pushed by the escaping gas. It fell to the floor.

Mike Shea stuck a forefinger in his mouth and then put it against the crack. "Thank the Lord," he breathed, "not the sign of a draft."

"Good, good. Open it wider. Go ahead."

Another notch and the crack opened further. And still no draft. Slowly, ever so slowly, notch by notch, it creaked its way wider and wider. The two men held their breaths, afraid that while not actually punctured, the outer door might have been so weakened as to give way any moment. But it held! Moore was jubilant as he wormed into the spacesuit.

"Things are going fine so far, Mike," he said. "You sit down right here and wait for me. I don't know how long I'll take but I'll be back. Where's the heat-ray? Have you got it?"

Shea held out the ray and asked, "But what are you going to do? I'd sort of like to know."

Moore paused as he was about to buckle on the helmet. "Did you hear me say inside that we had water enough to throw away? Well, I've been thinking it over and that's not such a bad idea. I'm going to throw it away." With no other explanation, he stepped into the lock, leaving behind him a very puzzled Mike Shea.

IT was with a pounding heart that Moore waited for the outer door to open. His plan was an extraordinarily simple one—but it might not be easy to carry out.

There was a sound of creaking gears and scraping ratchets. Air sighed away to nothingness. The door before him slid open a few inches and stuck. Moore's heart sank as for a moment he thought it would not open at all, but after a few preliminary jerks and rattles the barrier slid the rest of the way.

He clicked on the magnetic grapple and, very cautiously, put a foot out into space. Clumsily, he groped his way out to the side of the ship. He had never been outside a ship in open space before and a vast dread overtook him as he clung there, fly-like, to his precarious perch. For a moment dizziness overcame him.

He closed his eyes and for five minutes hung there, clutching the smooth sides of what had once been the *Silver Queen*. The magnetic grapple held him firm and when he opened his eyes once more he found his self-confidence in a measure returned.

He gazed about him. For the first time since the crash he saw the stars, instead of the vision of bloated Vesta which their porthole afforded. Eagerly, he searched the skies for the little green speck that was Earth. It had often

amused him that Earth should always be the first object sought for space-travelers when star-gazing but the humor of the situation did not strike him now. However, his search was in vain. From where he lay Earth was invisible. It, as well as the Sun, must be hidden behind Vesta.

Still, there was much else that he could not help but note. Jupiter was off to the left, a brilliant globe the size of a small pea to the naked eye. Moore observed two of its attendant satellites. Saturn was visible, too, as a brilliant star of some negative magnitude, rivaling Venus as seen from Earth.

Moore had expected that a goodly number of asteroids would be visible, marooned as they were in the asteroid belt, but space seemed surprisingly empty. Once he thought he could see a hurtling body pass within a few miles but so fast had the impression come and gone that he could not swear that it was not fancy.

And then, of course, there was Vesta. Almost directly below him it loomed like a balloon filling a quarter of the sky. It floated steadily, snowy white, and Moore gazed at it with earnest longing. A good hard kick against the side of the ship, he thought, might start him falling toward Vesta. He *might* land safely and get help for the others. But the chance was too great that he would merely take on a new orbit about Vesta. No, it would have to be better than that.

This reminded him that he had no time to lose. He scanned the side of the ship, looking for the water tank but all he could see was a jungle of jutting walls, jagged, crumbling, and pointed. He hesitated. Evidently, the only thing to do was to make for the lighted porthole to their room and proceed to the tank from there.

Carefully he dragged himself along

the wall of the ship. Not five yards from the lock, the smoothness stopped abruptly. There was a yawning cavity which Moore recognized as having once been the room adjoining the corridor at the far end. He shuddered. Suppose he were to come across a bloated dead body in one of those rooms. He had known most of the passengers, many of them personally. But he overcame his squeamishness and forced himself to continue.

AND here he encountered his first practical difficulty. The room itself was made of non-ferrous material in many parts. The magnetic grapple was intended for use only on outer hulls and was useless throughout much of the ship's interior. Moore had forgotten this when suddenly he found himself floating down an incline, his grapple out of use. He gasped and clutched at a nearby projection. Slowly, he pulled himself back to safety.

He lay for a moment, almost breathless. Theoretically, he should be weightless out here in space (Vesta's influence being negligible), but the regional gravitator under his room was working. Without the balance of the other gravitators, it tended to place him under variable and sudden-shifting stresses as he kept changing his position. For his magnetic grapple to let go suddenly might mean being jerked away from the ship altogether. And then what?

Evidently, this was going to be even more difficult than he had thought.

After that, he inched forward in a crawl, testing each spot to see if the grapple would hold. Sometimes he had to make long, circuitous journeys to gain a few feet's headway and at other times he was forced to scramble and slip across small patches of non-ferrous material. And always there was that tir-

ing pull of the gravitator, continually changing direction as he progressed, setting horizontal floors and vertical walls at queer and almost haphazard angles.

Carefully, he investigated all objects that he came across. But it was a barren search. Loose articles, chairs, tables had been jerked away at the first shock probably and now were independent bodies of the solar system. He did manage, however, to pick up a small field-glass and a fountain pen. These he placed in his pocket. They were valueless under present conditions, but somehow they seemed to make more real this macabre trip across the sides of a dead ship.

For fifteen minutes, twenty, half an hour, he labored slowly toward where he thought the porthole should be. Sweat poured down into his eyes and rendered his hair a matted mass. His muscles were beginning to ache under the unaccustomed strain. His mind, already strained by the ordeal of the previous day, was beginning to waver, to play him tricks.

The crawl began to seem eternal, something that had always existed and would exist forever. The object of the journey, that for which he was striving seemed unimportant; he only knew that it was necessary to move. The time, one hour back, when he had been with Brandon and Shea, seemed hazy and lost in the far past. That more normal time, two days ago, wholly forgotten.

Only the jagged walls before him; only the vital necessity of getting at some uncertain destination existed in his spinning brain. Grasping, straining, pulling. Feeling for the iron alloy. Up and into gaping holes that were rooms and then out again. Feel and pull;—feel and pull. And—a light.

MOORE stopped; had he not been glued to the wall he would have

fallen. Somehow that light seemed to clear things. It was the porthole; not the many dark, staring ones he had passed, but alive and alight. Behind it was Brandon. A deep breath and he felt better, his mind cleared.

And now his way lay plain before him. Toward that spark of life he crept. Nearer, and nearer, and nearer until he could touch it. He was there!

His eyes drank in the familiar room. God knows that it hadn't any happy associations in his mind, but it was something real, something almost natural. Brandon slept on the couch. His face was worn and lined but a smile passed over it now and then.

Moore raised his fist to knock. He felt the urgent desire to talk with someone, if only by sign language; yet at the last instant, he refrained. Perhaps the kid was dreaming of home. He was young and sensitive and had suffered much. Let him sleep! Time enough to wake him when—and if—his idea had been carried through.

He located the wall within the room behind which lay the water tank and then tried to spot it from the outside. Now it was not difficult; its rear wall stood out prominently. Moore marveled, for it seemed a very miracle that it had escaped puncture. Perhaps the Fates had not been so ironic after all.

Passage to it was easy though it was on the other side of the fragment. What was once a corridor led almost directly to it. Once when the *Silver Queen* had been whole, that corridor had been level and horizontal, but now, under the unbalanced pull of the regional gravitator, it seemed more of a steep incline than anything else. And yet it made the path simple. Of uniform beryl-steel, Moore found no trouble holding on as he wormed up the twenty-odd feet to the water supply.

And now the crisis—the last stage—

had been reached. He felt that he ought to rest first but his excitement grew rapidly in intensity; it was either now or bust. He pulled himself out to the bottom-center of the tank. There, resting on the small ledge formed by the floor of the corridor that had once extended on that side of the tank, he began operations.

"It's a pity that the main pipe is pointing in the wrong direction," he muttered. "It would have saved me a lot of trouble had it been right. As it is—" He sighed and bent to his work. The heat-ray was adjusted to maximum concentration and the invisible emanations focused at a spot perhaps a foot above the floor of the tank.

Gradually the effect of the excitatory beam upon the molecules of the wall became noticeable. A spot the size of a dime began shining faintly at the point of focus of the ray-gun. It wavered uncertainly, now dimming, now brightening as Moore strove to steady his tired arm. He propped it on the ledge and achieved better results as the tiny circle of radiation brightened.

**S**LOWLY the color ascended the spectrum. The dark, angry red that had first appeared lightened to a cherry color. As the heat continued pouring in, the brightness seemed to ripple out in widening areas, like a target made of successively deepening tints of red. The wall for a distance of some feet from the focal point was becoming uncomfortably hot even though it did not glow and Moore found it necessary to refrain from touching it with the metal of his suit.

Moore cursed steadily, for the ledge itself was also growing hot. It seemed that only imprecations could sooth him. And as the melting wall began to radiate heat in its own right, the chief object of his maledictions were the space-

suit manufacturers. Why didn't they build a suit that could keep heat *out* as well as keep it *in*?

But what Brandon called Professional Optimism crept up. With the salt tang of perspiration in his mouth, he kept consoling himself, "It could be worse, I suppose. At least, the two inches of wall here don't present too much of a barrier. Suppose the tank had been built flush against the outer hull. Whew! Imagine trying to melt through a foot of this." He gritted his teeth and kept on.

The spot of brightness was now flickering into the orange-yellow and Moore knew that the melting point of the beryl-steel alloy would soon be reached. He found himself forced to watch the spot only at widely-spaced intervals and then only for fleeting moments.

Evidently it would have to be done quickly, if it were to be done at all. The heat-ray had not been fully loaded in the first place, and, pouring out energy at maximum as it had been doing for almost ten minutes now, must be approaching exhaustion. Yet the wall was just barely passing the plastic stage. In a fever of impatience, Moore jammed the muzzle of the gun directly at the center of the spot, drawing it back speedily.

A deep depression formed in the soft metal, but a puncture had not been formed. However, Moore was satisfied. He was almost there, now. Had there been air between himself and the wall, he would undoubtedly have heard the gurgling and the hissing of the steaming water within. The pressure was building up. How long would the weakened wall endure?

Then, so suddenly that Moore did not realize it for a few moments, he was through. A tiny fissure formed at the bottom of that little pit made by the ray-gun and in less time than it takes to

imagine, the churning water within had its way.

The soft, liquid metal at that spot puffed out, sticking out raggedly around a pea-sized hole. And from that hole there came a hissing and a roaring. A cloud of steam emerged and enveloped Moore.

Through the mist he could see the steam condense almost immediately to ice droplets and saw these icy pellets shrink rapidly into nothingness.

For fifteen minutes, he watched the steam shoot out.

Then he became aware of a gentle pressure pushing him away from the ship. A savage joy welled up within him as he realized that this was the effect of acceleration on the ship's part. His own inertia was holding him back.

That meant his work had been finished—and successfully. That stream of water was substituting for the rocket blast.

He started back.

**I**F the horrors and dangers of the journey from lock to tank had been great, that back was greater. He was infinitely more tired, his aching eyes were all but blind, and added to the crazy pull of the Gravitator was the force induced by the varying acceleration of the ship. But whatever his labors to return, they did not bother him. In later time, he never even remembered the heartbreaking trip.

How he managed to negotiate the distance in safety he did not know. Most of the time he was lost in a haze of happiness, scarcely realizing the actualities of the situation. His mind was filled with one thought only—to get back quickly, to tell the happy news of their escape.

Suddenly he found himself before the airlock. He hardly grasped the fact that it *was* the airlock; he almost did

not understand why he pressed the signal button. Some instinct told him it was the thing to do.

Mike Shea was waiting. There was a creak and a rumble and the outer door started opening, caught and stopped at the same place as before but once again it managed to slide the rest of the way. It closed again behind him. Then the inner door opened and Moore stumbled into Shea's arms.

As in a dream he felt himself half pulled, half carried down the corridor to the room. His suit was ripped off and a hot, burning liquid stung his throat. Moore gagged, swallowed and felt better. Shea pocketed the *Jabra* bottle once more.

The blurred, shifting images of Brandon and Shea before him steadied and became solid. Moore wiped the perspiration from his face with a trembling hand and essayed a weak smile.

"Wait," protested Brandon, "don't say anything. You look half dead. Rest, will you!"

But Moore shook his head. In a hoarse, cracked voice he narrated as well as he could the events of the past two hours. The tale was incoherent, scarcely intelligible but marvelously impressive. The two listeners scarcely breathed during the recital.

"You mean," stammered Brandon, "that the water spout is pushing us toward Vesta; like a rocket exhaust."

"Exactly—same thing as—rocket exhaust," panted Moore, "action and reaction. Is located—on side opposite Vesta—hence pushing us toward Vesta."

Shea was dancing before the porthole. "He's right, Brandon, me boy. You can make out Bennett's dome as clear as day. We're getting there, we're getting there."

"We're approaching in spiral path on account of original orbit," Moore felt

himself recovering. "We'll land in five or six hours probably. The water will last for quite a long while and the pressure is still great, since the water issues as steam."

"Steam—at the low temperature of space?" Brandon was surprised.

"Steam—at the low pressure of space!" corrected Moore. "The boiling point of water falls with the pressure. It is very low indeed in a vacuum. Even ice has a vapor pressure sufficient to sublime."

He smiled. "As a matter of fact, it freezes and boils at the same time. I watched it." A short pause, then, "Well, how do you feel now, Brandon? Much better, eh?"

Brandon reddened and his face fell. He groped vainly for words for a few moments. Finally he said in a half-whisper, "You know, I must have acted like a damn fool and a coward at first. I—I guess I don't deserve all this after going to pieces and letting the burden of our escape rest on your shoulders.

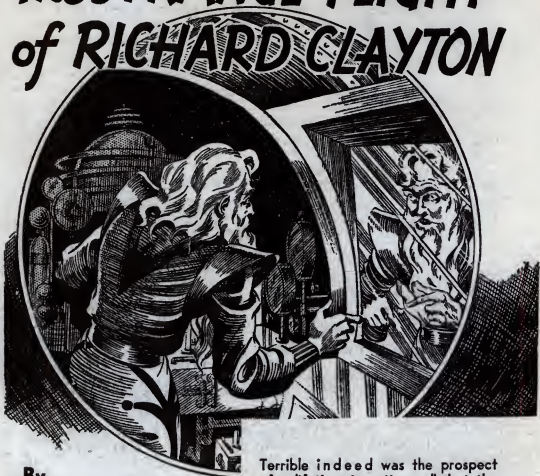
"I wish you'd beat me up, or something, for punching you before. It'd make me feel better. I mean it." And he really did seem to mean it.

Moore gave him an affectionate push. "Forget it, you young jackass. You'll never know how near I came to breaking down myself." He raised his voice in order to drown out any further apologies on Brandon's part, "Hey, Mike, stop staring out of that porthole and bring over that *Jabra* bottle."

Mike obeyed with alacrity, bringing with him three shaving mugs to be used as makeshift cups. Moore filled each precisely to the brim. He was going to be drunk with a vengeance.

"Gentlemen," he said solemnly, "a toast." The three raised the mugs in unison, "Gentlemen, I give you the year's supply of good old H<sub>2</sub>O we used to have."

# The STRANGE FLIGHT of RICHARD CLAYTON



By  
**ROBERT BLOCH**

**R**ICHARD CLAYTON braced himself so that he stood like a diver waiting to plunge from a high board into the blue. In truth he was a diver. A silver space-ship was his board, and he meant to plunge not down, but up into the blue sky. Nor was it a matter of twenty or thirty feet he meant to go—instead, he was plunging millions of miles.

With a deep breath, the pudgy, moon-faced scientist raised his hands to the cold steel lever, closed his eyes, and

Terrible indeed was the prospect of a lifetime in a tiny cell, but the achievement was worth the price.

jerked. The switch moved downward.

For a moment nothing happened.

Then a sudden jerk threw Clayton to the floor. The *Future* was moving!

**T**HE pinions of a bird beating as it soars into the sky—the wings of a moth thrumming in flight—the quivering behind leaping muscles; of these things the shock was made.

The space-ship *Future* vibrated madly. It rocked from side to side, and a humming shook the steel walls.

Richard Clayton lay dazed as a high-pitched droning arose within the vessel. He rose to his feet, rubbing a bruised forehead, and lurched to his tiny bunk. The ship was moving, yet the terrible vibration did not abate. He glanced at the controls and then swore softly.

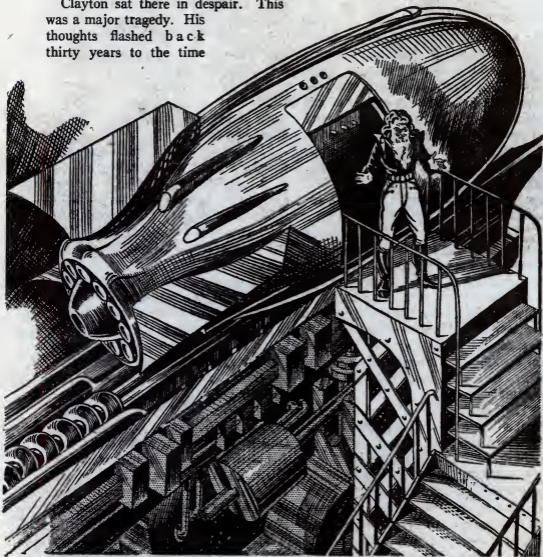
"Good God! The panel is shattered!"

It was true. The instrument board had been broken by the shock. The cracked glass had fallen to the floor, and the dials swung aimlessly on the bare face of the panel.

Clayton sat there in despair. This was a major tragedy. His thoughts flashed back thirty years to the time

when he, a boy of ten, had been inspired by Lindbergh's flight. He recalled his studies; how he had utilized the money of his millionaire father to perfect a flying machine which would cross Space itself.

For years Richard Clayton had worked and dreamed and planned. He studied the Russians and their rockets, organized the Clayton Foundation and hired mechanics, mathematicians, astronomers, engineers to labor with him.



He was trembling with joy as he stepped from the space ship.



Then there had been the discovery of atomic propulsion, and the building of the *Future*. The *Future* was a shell of steel and duraluminum, windowless and insulated by a guarded process. In the tiny cabin were oxygen tanks, stores of food tablets, energizing chemicals, air-conditioning arrangements — a n d space for a man to walk six paces.

It was a small steel cell; but in it Richard Clayton meant to realize his ambitions. Aided in his soaring by rockets to get him past the gravitational pull of Earth, then flying by means of the atomic-discharge propulsion, Clayton meant to reach Mars and return.

It would take ten years to reach Mars; ten years to return, for the grounding of the vessel would set off additional rocket-discharges. A thousand miles an hour — not an imaginative "speed of light" journey, but a slow, grim voyage, scientifically accurate. The panels were set, and Clayton had no need to guide his vessel. It was automatic.

"But now what?" Clayton said, staring at the shattered glass. He had lost touch with the outer world. He would be unable to read his progress on the board, unable to judge time and distance and direction. He would sit here for ten, twenty years—all alone in a tiny cabin. There had been no room for books or paper or games to amuse him. He was a prisoner in the black void of Space.

The earth had already faded far below him; soon it would be a ball of burning green fire smaller than the ball of red fire ahead—the fire of Mars.

Crowds had swarmed the field to watch him take off; his assistant Jerry Chase had controlled them. Clayton pictured them watching his shining steel cylinder emerging from the gaseous smoke of the rockets and rushing like a bullet into the sky. Then his cylinder

would have faded away into the blue and the crowds would leave for home and forget.

But he remained, here in the ship—for ten, for twenty years.

Yes, he remained, but when would the vibration stop? The shuddering of the walls and floor about him was awful to endure; he and the experts had not counted on this problem. Tremors wrenched through his aching head. What if they didn't cease, if they endured through the entire voyage? How long could he keep from going mad?

He could think. Clayton lay on his bunk and remembered—reviewed every tiny detail of his life from birth to the present. And soon he had exhausted all memory in a pitifully short time. Then he felt the horrible throbbing all about him.

"I can exercise," he said aloud, and paced the floor; six steps forward, six back. And he tired of that. Sighing, Clayton went to the food-stores in the cabinet and downed his capsules. "I can't even spend any time eating," he wryly observed. "A swallow and it's over."

The throbbing erased the grin from his face. It was maddening. He lay down once more in the lurching bunk; switched on oxygen in the close air. He would sleep, then; sleep if this damned thrumming would permit. He endured the horrid clanking that groaned all through the silence; switching off the lights. His thoughts turned to his strange position; a prisoner in Space. Outside the burning planets wheeled, and stars whizzed in the inky blackness of spatial Nothingness. Here he lay safe and snug in a vibrating chamber; safe from the freezing cold. If only the awful jarring would stop!

Still, it had its compensations. There would be no newspapers on the voyage to torment him with accounts of man's

inhumanity to man; no silly radio or television programs to annoy him. Only this cursed, omnipresent vibration . . .

Clayton slept, hurtling through Space.

IT was not daylight when he awoke. There was no daylight and no night. There was simply himself and the ship in Space. And the vibration was steady, nerve-wracking in its insistent beating against the brain. Clayton's legs trembled as he reached the cabinet and ate his pills.

Then, he sat down and began to endure. A terrific feeling of loneliness was beginning to assail him. He was so utterly detached here—cut off from everything. There was nothing to do. It was worse than being a prisoner in solitary confinement; at least they have larger cells, the sight of the sun, a breath of fresh air, and the glimpse of an occasional face.

Clayton had thought himself a misanthrope, a recluse. Now he longed for the sight of another's face. As the hours passed he got queer ideas. He wanted to see Life, in some form—he would have given a fortune for the company of even an insect in his soaring dungeon. The sound of a human voice would be heaven. He was so *alone*.

Nothing to do but endure the jerking, pace the floor, eat his pills, try to sleep. Nothing to think about. Clayton began to long for the time when his nails needed cutting; he could stretch out the task for hours.

He examined his clothes intently, stared for hours in the little mirror at his face. He memorized his body, scrutinized every article in the cabin of the *Future*.

And still he was not tired enough to sleep again.

He had a throbbing headache constantly. At length he managed to close

his eyes and drift off into another slumber, broken by shocks which startled him into waking.

When finally he arose and switched on the light, together with more oxygen, he made a horrible discovery.

*He had lost his time-sense.\**

"Time is relative," they had always told him. Now he realized the truth. He had nothing to measure time by—no watch, no glimpse of the sun or moon or stars, and no regular activities. How long had he been on this voyage? Try as he might, he could not remember.

Had he eaten every six hours? Or every ten? Or every twenty? Had he slept once each day? Once every three or four days? How often had he walked the floor?

With no instruments to place himself he was at a total loss. He ate his pills in a bemused fashion, trying to think above the shuddering which filled his senses.

This was awful. If he lost track of Time he might soon lose consciousness of identity itself. He would go mad here in the space-ship as it plunged through the void to planets beyond. Alone, tormented in a tiny cell, he had to cling to something. What was Time?

He no longer wanted to think about it. He no longer wanted to think about anything. He had to forget the world he left, or memory would drive him frantic.

"I'm afraid," he whispered. "Afraid

\* Einstein has taught us that everything is relative, and time most of all has this peculiarity. We tell time by relative means, comparing the motion of one body in relation to another. In our case, the revolution of the earth on its axis, and around the sun provide us with a time sense. Remove this visible means of telling time, in improvised units, and its very meaning becomes unintelligible. In short, time becomes non-existent. We have nothing to compare. Thus, it was inevitable that Richard Clayton should lose his ability to tell what time it was, or even at what rate time was passing. Minutes seem hours to one who is trying mentally to compute time.—Ed.

of being alone in the darkness. I may have passed the moon. I may be a million miles away from Earth by now—or ten million."

Then Clayton realized that he was talking to himself. That way was madness. But he couldn't stop, any more than he could stop the horrible jarring vibration all around him.

"I'm afraid," he whispered in a voice that sounded hollow in the tiny humming room. "I'm afraid. *What time is it?*"

He fell asleep, still whispering, and Time rushed on.

CLAYTON awoke with fresh courage. He had lost his grip, he reasoned. Outside pressure, however equalized, had affected his nerves. The oxygen might have made him giddy, and the pill diet was bad. But now the weakness had passed. He smiled, walked the floor.

Then the thoughts came again. What day was it? How many weeks since he had started? Maybe it was months already; a year, two years. Everything of Earth seemed far away; almost part of a dream. He now felt closer to Mars than to Earth; he began to anticipate now instead of looking back.

For a while everything had been mechanical. He switched light on and off when needed, ate pills by habit, paced the floor without thinking, unconsciously tended the air system, slept without knowing when or why.

Richard Clayton gradually forgot about his body and the surroundings. The lurching buzz in his brain became a part of him; an aching part which told that he was whizzing through Space in a silver bullet. But it meant nothing more, for Clayton no longer talked to himself. He forgot himself and dreamed only of Mars ahead. Every throb of the vessel hummed "Mars—Mars—

Mars."

A wonderful thing happened. He landed. The ship nosed down, trembling. It eased gently onto the grassy sward of the red planet. For a long time Clayton had felt the pull of alien gravity, knew that automatic adjustments of his vessel were diminishing the atomic discharges and using the natural gravitational pull of Mars itself.

Now the ship landed, and Clayton had opened the door. He broke the seals and stepped out. He bounded lightly to the purple grass. His body felt free, buoyant. There was fresh air, and the sunlight seemed stronger, more intense, although clouds veiled the glowing globe.

Far away stood the forests, the green forests with the purple growth on the lushly-rearing trees. Clayton left the ship and approached the cool grove. The first tree had boughs that bent to the ground in two limbs.

Limbs—limbs they were! Two green arms reached out. Clawing branches grasped him and lifted him upward. Cold coils, slimy as a serpent's, held him tightly as he was pressed against the dark tree-trunk. And now he was staring into the purple growths set in the leaves.

The purple growths were—*heads*.

Evil, purple faces stared at him with rotting eyes like dead toadstools. Each face was wrinkled like a purple cauliflower, but beneath the pulpy mass was a great mouth. Every purple face had a purple mouth and each purple mouth opened to drip blood. Now the tree-arms pressed him closer to the cold, writhing trunk, and one of the purple faces—a woman's face—was moving up to kiss him.

The kiss of a vampire! Blood shone scarlet on the moving sensuous lips that bore down on his own. He struggled, but the limbs held him fast and the kiss

came, cold as death. The icy flame of it seared through his being and his senses drowned.

Then Clayton awoke, and knew it was a dream. His body was bathed with moisture. It made him aware of his body. He tottered to the mirror.

A single glance sent him reeling back in horror. Was this too a part of his dream?

Gazing into the mirror, Clayton saw reflected the face of an aging man. The features were heavily bearded, and they were lined and wrinkled, the once puffy cheeks were sunken. The eyes were the worst—Clayton did not recognize his own eyes any more. Red and deep-set in bony sockets, they burned out in a wild stare of horror. He touched his face, saw the blue-veined hand rise in the mirror and run through graying hair.

Partial Time-sense returned. He had been here for years. Years! He was growing old!

Of course the unnatural life would age him more rapidly, but still a great interval must have passed. Clayton knew that he must soon reach the end of his journey. He wanted to reach it before he had any more dreams. From now on, sanity and physical reserve must battle against the unseen enemy of Time. He staggered back to his bunk, as trembling like a metallic flying monster, the *Future* rushed on in the blackness of interstellar Space.

THEY were hammering outside the vessel now; their iron arms were breaking in the door. The black metal monsters lumbered in with iron tread. Their stern, steel-cut faces were expressionless as they grasped Clayton on either side and pulled him out. Across the iron platform they dragged him, walking stiffly with clicking feet that clanged against the metal. The great

steel shafts rose in silvery spires all about, and into the iron tower they took him. Up the stairs—clang, clang, clang pounded the great metal feet.

And the iron stairs wound round endlessly; yet still they toiled. Their faces were set, and iron does not sweat. They never tired, though Clayton was a panting wreck ere they reached the dome and threw him before the Presence in the tower room. The metallic voice buzzed, mechanically, like a broken phonograph record.

"We - found - him - in - a - bird - oh - Master."

"He - is - made - of - soft - ness."

"He - is - alive - in - some - strange - way."

"An - an - im - al."

And then the booming voice from the center of the tower floor.

"I hunger."

Rising on an iron throne from the floor, the Master. Just a great iron trap, with steel jaws like those on a steam-shovel. The jaws clicked open, and the horrid teeth gleamed. A voice came from the depths.

"Feed me."

They threw Clayton forward in iron arms, and he fell into the trap-jaws of the monster. The jaws closed, champing with relish on human flesh . . .

CLAYTON woke screaming. The mirror gleamed as his trembling hands found the light-switch. He stared into the face of an aging man with almost white hair. Clayton was growing old. And he wondered if his brain would hold out.

Eat pills, walk cabin, listen to the throbbing, put on air, lie on bunk. That was all, now. And the rest—waiting. Waiting in a humming torture-chamber, for hours, days, years, centuries, untold eons.

In every eon, a dream. He landed

on Mars and the ghosts came coiling out of a gray fog. They were shapes in the fog, like slimy ectoplasm, and he saw through them. But they coiled and came, and their voices were faint whispers in his soul.

"Here is Life," they whispered. "We whose souls have crossed the Void in death have waited for Life to feast on. Let us take our feasting now."

And they smothered him under gray blankets, and sucked with gray, pricking mouths at his blood. . . .

Again he landed on the planet and there was nothing. Absolutely nothing. The ground was bare and it stretched off into horizons of nothingness. There was no sky nor sun, merely the ground; endless in all directions.

He set foot on it, cautiously. He sank down into nothingness. The nothingness was throbbing now, like the ship throbbed, and it was engulfing him. He was falling into a deep pit without sides, and the oblivion closed all about him . . .

Clayton dreamed this one standing up. He opened his eyes before the mirror. His legs were weak and he steadied himself with hands that shook with age. He looked at the face in the glass—the face of a man of seventy.

"God!" he muttered. It was his own voice—the first sound he had heard in how long? How many years? For how long had he heard nothing above the hellish vibrations of this ship? How far had the *Future* gone? He was old already.

A horrid thought bit into his brain. Perhaps something had gone wrong. Maybe the calculations were at fault and he was moving into Space too slowly. He might never reach Mars. Then again—and it was a dreadful possibility—he had passed Mars, missed the carefully charted orbit of the planet. Now he was plunging on into empty

voids beyond.

He swallowed his pills and lay down in the bunk. He felt a little calmer now; he had to be. For the first time in ages he remembered Earth.

Suppose it had been destroyed? Invaded by war or pestilence or disease while he was gone? Or meteors had struck it, some dying star had flamed death upon it from maddened heavens. Ghastly notions assailed him—what if Invaders crossed Space to conquer Earth, just as he now crossed to Mars?

But no sense in worrying about *that*. The problem was reaching his own goal. Helpless, he had to wait; maintain life and sanity long enough to achieve his aims. In the vibrating horror of his cell, Clayton took a mighty resolve with all his waning strength. He *would* live, and when he landed he would see Mars. Whether or not he died on the long voyage home, he would exist until his goal was reached. He would fight against dreams from this moment on. No means of telling Time—only a long daze, and the humming of this infernal space-ship. But he'd live.

There were voices coming now, from outside the ship. Ghosts howled in the dark depths of Space. Visions of monsters and dreams of torment came, and Clayton repulsed them all. Every hour or day or year—he no longer knew which—Clayton managed to stagger to the mirror. And always it showed that he was aging rapidly. His snow-white hair and wrinkled countenance hinted at incredible senility. But Clayton lived. He was too old to think any longer, and too weary. He merely lived in the droning of the ship.

AT first he didn't realize. He was lying on his bunk and his rheumy eyes were closed in stupor. Suddenly he became aware that the lurching had stopped. Clayton knew he must be

dreaming again. He drew himself up painfully, rubbed his eyes. No—the *Future* was still. It had *landed!*

He was trembling uncontrollably. Years of vibration had done this; years of isolation with only his crazed thoughts for company. He could scarcely stand.

But this was the moment. This was what he had waited for for ten long years. No, it must have been many more years. But he could see Mars. He had made it—done the impossible!

It was an inspiring thought. But somehow, Richard Clayton would have given it all up if he could only have learned what time it was, and heard it from a human voice.

He staggered to the door—the long-sealed door. There was a lever here.

His aged heart pumped with excitement as he pulled the lever upward. The door opened—sunlight crept through—air rushed in—the light made him blink and the air wheezed in his lungs—his feet were moving out—

Clayton fell forward into the arms of Jerry Chase.

Clayton didn't know it was Jerry Chase. He didn't know anything any

longer. It had been too much.

CHASE was staring down at the feeble body in his arms.

"Where's Mr. Clayton?" he murmured. "Who are you?" He stared at the aged, wrinkled face.

"Why—it's Clayton!" he breathed. "Mr. Clayton, what's wrong sir? The atomic discharges failed when you started the ship, and all that happened was that they kept blasting. The ship never left the earth, but the violence of the discharges kept us from reaching you until now. We couldn't get to the *Future* until they stopped. Just a little while ago the ship finished shuddering, but we've been watching night and day. What happened to you, sir?"

The faded blue eyes of Richard Clayton opened. His mouth twitched as he faintly whispered.

"I—lost track of Time. How—how long was I in the *Future*?"

Jerry Chase's face was grave as he stared again at the old man and answered, softly.

"Just one week."

And as Richard Clayton's eyes glazed in death, the long voyage ended.

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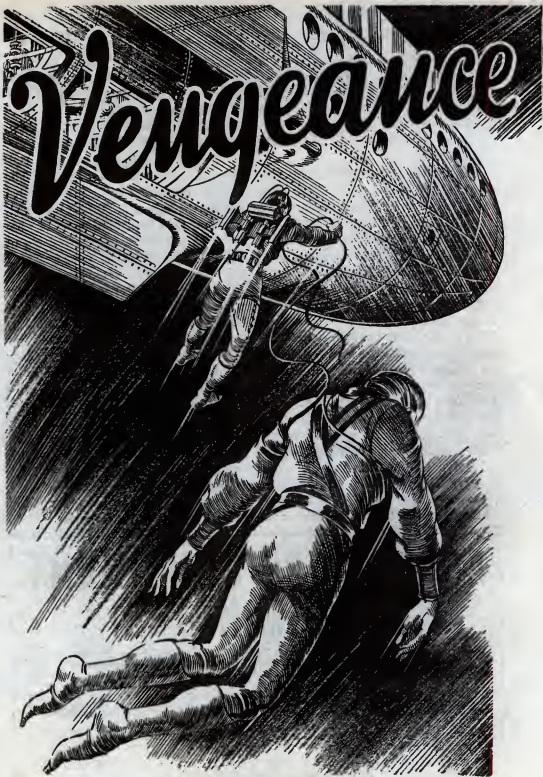
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Dr. Thain retrieved the frozen body from the void.

# from the Void

By **FREDERIC ARNOLD KUMMER, Jr.**

Brought back from death, Erik found Mars in a state of terror, and his vengeance was ruthless as space itself.

## CHAPTER I

### Resurrection in the Void

**T**HE little space-car hung motionless, her rockets jetting thinly to combat the faint gravitational pull of Mars a thousand miles below. Stumpy, broad of beam, compared to the big sleek interplanetary cruisers, she seemed a giant fire-fly, lighting up the void with the flare of her exhausts. Rocket Runabout, Model A, the Martian yachting catalogues would list her, roomy, dependable, hundred thousand mile cruising range, ideal for family use as well as commuting between the red planet and its satellites.

Whatever the ship had been on leaving the factories of Mercis, it was evident now, however, that she was being used neither for casual cruises nor daily commuting. The wide overstuffed seats, the big television screen, and all those other luxurious features so emphatically stressed in the catalogues, had been removed; in their place was a bewildering array of scientific apparatus, cluttering the floor, the walls, the ceiling, even blocking to some extent the large glass observation windows which lined the little vessel's sides. Retorts, beakers, microscopes, bottles of all sizes and shapes . . . curious tangles of tubes and wires . . . and a workbench covered with tools of every sort in that absolute disarray which, to

the worker, is more convenient than orderliness. The little vessel was a complete, efficient flying laboratory.

In the midst of all this confusion sat a man, broad-shouldered, obese, red-nosed, with a fringe of rusty hair wreathing his bald head. Even in his white chemist's smock, with his hands full of test tubes, he did not conform to the popular conception of a scientist. He was fond of saying, this Dr. Marcus Thain, that with stooped shoulders and grey beard he would have an easier time in convincing the world that his discoveries were of importance.

At the forward end of the runabout's cockpit, in the seat facing the control panel, sat a girl. The twin terminals of a book-recording machine were clamped over her ears; absorbed in a novel she lay comfortably back in her chair quite oblivious to the scientist hard at work only a few feet away. The girl's manish attire of boots, breeches, and open-necked shirt seemed to emphasize rather than detract from her slim, very feminine loveliness. Her hair, like Dr. Thain's hirsute fringe, was the color of a rust-red Martian plain.

All at once the girl bent down, snapped off the switch of the book-recorder. Taking the two light crystalloid plugs from her ears, she stood up.

"Time for lunch," she announced.

"Umm," Dr. Thain grunted. Then,



a trifle peevishly, "Why do you always decide to eat just when I'm deep in work . . .?"

"Only because you're always deep in work," Anna Thain laughed. "The cosmic rays'll be there after you've finished."

Her father chuckled, slid off his high stool.

"You're right as usual," he said, patting his large paunch. "I'm just beginning to realize how hungry I was. What's in the ice-box?"

ANNA, her hand on the knob of the food locker, did not answer. Eyes fixed on the big forward observation port, she was staring into the surrounding darkness.

"Something adrift," she murmured. "Look. Over there. You can see the sun's rays reflected from it."

Dr. Thain followed her gaze. Far to the right a small indistinguishable object was drifting by them, evidently caught by the weak distant pull of Mars.

"Bit of wreckage," the doctor shrugged. "Or something dropped overboard by a space liner. Maybe a piece of meteor . . ."

Anna picked up a pair of powerful binoculars. Raising the glasses to her eyes, she turned the adjustment screw.

"Funny," her voice sounded strained, a trifle frightened. "It looks like—Dad! It's . . . it's a human body!"

"Eh? A corpse?" Dr. Thain took the binoculars from her, adjusted them to his own eyes. "By Jupiter! You're right! Victim of some spacewreck, I daresay! God only knows how long he's been floating out there in the ether! Take the controls and pull up alongside of him. I'll dig out a space-suit . . ."

"What!" Anna's smoke-blue eyes widened with horror. "You . . . you don't mean to bring a . . . a dead man aboard?"

"Why not, my dear?" Dr. Thain seemed surprised. "Death is merely a natural physical phenomenon. And I can assure you that the body will be perfectly preserved by the cold out there. I conceive it our duty to pick up this corpse. It may contain information of some tragic disaster. And there may be friends, relatives, who would like to see it buried in consecrated ground."

Anna nodded, tight-lipped.

"All right," she forced a laugh. "I've lost all my appetite for lunch now, anyhow."

"Right, then." Dr. Thain took a space-suit from the emergency life-locker, squeezed his bulk into it. With consummate skill Anna moved the controls, edging the runabout toward the floating body at a barely perceptible rate of space-speed. Tiny threads of flame jetted from the little craft's rocket-tubes; very gently it approached the body.

Dr. Thain was in the air-lock now, his face ruddy behind the glass front of his helmet. Crouched low, gripping an iron hand-hold, he swung out, extended his free right arm. Very slowly Anna brought the runabout closer. All at once the doctor lunged outward, seized one of the stiff, frozen feet and, after some difficulty, drew the body into the air-lock beside him. The outer door of the lock swung shut and a moment later Dr. Thain was placing the body upon his long workbench.

Anna set the controls in position to keep the runabout stationary and while her father divested himself of the clumsy space-suit, stared with macabre fascination at the corpse from the void.

THE dead man was young, dark-haired, and hawk-faced. His expression was peaceful, though somewhat drawn, and there seemed to be no

wound or injury on his lean, muscular body. The clothes he wore were plain, and of outmoded cut, yet exceedingly fine in quality. From his costume, with its loose cellosilk blouse, its blue spunglass trousers, one would have taken him for a person of some consequence, the scion of a wealthy Martian family, or perhaps a rising young business man already successful in the humming trade centers of the red planet. Upon his finger the man wore a large ring; its device (an anvil and a ploughshare, surmounted by a beaker) seemed to Anna somehow familiar. She was trying to puzzle this out when Dr. Thain, free at last of the space-suit, stepped forward.

"Too bad, isn't it?" he murmured. "Nice-looking boy. Died of strangulation . . . lack of air . . . I see. No other signs of injury. Common enough when a ship is ripped open by a meteor or shattered by an internal explosion. Let's see if there's any identification in his pockets."

The dead man's pockets, however, were empty. His clothes bore the label of a well-known tailor in Mercis, capital of Mars.

"Odd," Dr. Thain shook his head. "Most people would have something on their persons, if only money or trinkets. Rather a mystery, this poor chap. What a story he might tell us if he could talk once more!"

"Talk!" Anna shuddered. "How horrible! Let's drop the body back into the void where it will remain in peace! Nothing to be gained by taking it to Mars, if there's no identification!"

"Umm," her father nodded absently, his eyes on the stiff white corpse. All at once he straightened up, his pouchy little eyes glowing. "Anna! I . . . I . . . God, child, what an opportunity! Listen, you've heard of cases where a person dead by strangulation, with none of the bodily organs injured, has been

brought back to life after as long as fifteen minutes by an injection of adrenalin into the heart? An old method, known for centuries. After fifteen or twenty minutes, however, it is impossible to bring them back due to coagulation of the blood, the decay of the higher brain cells!

But think . . . this man has been in space since his death, in a temperature approaching absolute zero! In a vacuum free of bacteria! No chance for frozen blood to coagulate, no chance for decay of bodily cells in that bitter cold! As far back as the 1930's there was a chap, a Russian, I believe, who kept dogs in living death by freezing them! Why not . . .?"\*

"Oh!" Anna's face went white. "It . . . it's impossible! After so long a time . . ."

"No harm in trying!" The doctor rooted among a drawer full of apparatus, drew out a long slender hypodermic needle. From his well-stocked shelves he took a tiny vial labeled "adrenalin," filled the hypodermic. "Now then, if you'll open his blouse just above the heart . . ."

Anna, her fingers trembling, unbuttoned the dead man's shirt. His flesh was cold, hard. Dr. Thain lit a small tri-oxine burner, sterilized the point of the needle, then turned the cabin's heating units on full. Slowly the corpse grew warm, thawing after the bitter temperatures of space.

"In another minute," Thain whispered. "As soon as the blood is hot enough to flow freely . . ." With a small knife he pricked the dead man's

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\* More recently, and with a human being, this marvel has been accomplished by a Dutch Scientist, Dr. De Lample, using a glandular extract from young cows, called vitaprolongin, which enabled him to freeze the body solid for forty-two days, after which time the subject, a woman by the name of Anna Broog, was resuscitated. (See AMAZING STORIES, February issue)—Ed.

arm, nodded as blood oozed out onto the skin. "Now . . .!"

Horrified, Anna watched her father place the point of the needle upon the man's breast, sink it in up to the guard. An instant later he drew it out, banded the small wound. No signs of life animated the pallid face on the table. With a swiftness unbelievable for his bulk, Dr. Thain bent over the still figure, commenced to administer artificial respiration. Long minutes passed. Anna gazed at the corpse, paralyzed. Who was this man they sought to return to life? What would he be if they succeeded? A primitive beast, a being without a soul? What dreadful story. . . .

All at once Dr. Thain ceased his efforts, straightened up.

"No use," he murmured. "I guess . . ."

He broke off, staring. A convulsive shudder had passed through the body on the table. Anna's hand fluttered to her mouth, stifling a scream. The man from the void was struggling to one elbow, eyes wide with terror. His lips, still bluish from the cold, moved faintly.

"No!" he whispered. Then, in a frenzied, rising scream, "No!" Suddenly, as though overcome with exhaustion, he fell back upon the table, breathing heavily.

"Anna!" Dr. Thain's voice was triumphant. "He's alive! Alive, once more! Head for home! Quickly!"

## CHAPTER II

"My Name Is Erik . . ."

**M**ARS, like the Gaul of Terrestrial legend, is divided into three parts. One, the ice fields of the polar caps, which, melting, fill the great canals, their small arms, and finally the tiny ir-

rigation ditches; the second, those green fertile areas that border the canals and supply the red planet with food; and third, the vast stretches of barren rust-colored desert.

Man-made, these deserts, the result of the Martians' profligate waste of their vast iron deposits. Here, in the old days, a steel building, about to be replaced by a finer one, was allowed to rust away; here a boy dropped a pocket knife and disdained to pick it up; here a great battle scattered tons of iron, covering miles of ground with rust.

And as the millenniums passed, red patches began to appear on the planet's green surface, like leprous sores, ever spreading. Water and iron . . . uniting to give off hydrogen and ferric oxide. Water and iron, necessary above all else to civilization, to life, transformed by man's waste to unbreathable hydrogen and useless rust.

With the coming of the Terrestrials, however, the decadent civilization of Mars had taken new life. The Martian Reclamation Company commenced work upon the red planet armed with a secret formula for reversing nature's process and transforming the hydrogen in the air and the rust-laden soil of the deserts back into iron and water. The latter was, of course, the most important product.

From the great Reclamation Centers in the deserts long pipelines led to new-formed communities, little oases in the sea of rust-colored clay, the denizens of which were glad to pay a small sum for the life-giving water.

In time, men said, there would be sufficient moisture for clouds, rain, but until this happy future day, they were dependent, as their fathers had been before them, on the all-powerful M. R. C.

It was in such an artificial oasis that Dr. Thain and his daughter made their home. Several barren miles outside of

Psidis it lay, a neat little crystalloid villa, surrounded by a small garden. The Reclamation Company's pipe line supplied them with water, pumped from the great center at Psidis. A hangar for the space-car, the distant towers of the city, were the only other objects to break the flat, desolate horizon.

Inside, the house was more cheerful. To fight off loneliness while her father was busy Anna devoted most of her time to the furnishing and upkeep of their home.

On this particular night, however, the living room had lost its usual neatness. Bottles, bandages, scientific equipment of every sort littered the chairs, the tables. Upon a sofa lay the man from the void, very pale, but still breathing. Anna and her father, hollow-eyed from a long night's vigil, stood staring at him.

"HE'LL do," Thain nodded. "I was afraid after the adrenalin had worn off . . . Ah, he's coming to!"

Very abruptly the lean muscular man from the void sat up, his eyes clouded with doubt.

"Jarth . . . the airlock . . ." he muttered. "Who . . . who are you?"

"Marcus Thain. And my daughter, Anna. We found your body drifting in space, brought you back to life by means of an adrenalin injection."

"Back to life!" A curiously bitter smile passed over the man's features. "Where are we?"

"Near Psidis, on Mars," Anna replied.

"Psidis!" The young man bowed his head. "What year?"

"2163."

"2163! Fifteen years! God! God!"

"Easy, lad, easy," Thain placed a hand upon the youth's shoulder. "Let your mind piece things together slowly. First tell us your name. You'll have friends, relatives, to notify . . ."

"Friends? Relatives?" The young man laughed. "None that would be glad to see me. Better, perhaps, if you had left me out yonder in the void. Unless . . ." He gazed at the doctor reflectively. "You're a scientist, aren't you? Your skill in bringing me back proves that."

"I am," Dr. Thain nodded.

"Good," the stranger replied. "I, too, was a scientist before . . . You see, I have nowhere to go, nowhere to turn, since you have revived me. But I could work as your assistant for my food and keep."

"Well" . . . Thain shook a ponderous head . . . "I suppose in a way you're my responsibility, now. We'll call it a deal. Can't see what all the mystery's about, though. And if we don't know your name . . ."

"You can call me . . . Erik."

For a long moment he stared through the window, his eyes on the red plain, the tiny patch of green that surrounded the house. Then, smiling at Anna, "Your lawn needs water."

The girl studied the brown, faded grass.

"Ours and all others," she said soberly. "Hensic, head of M. R. C. has been raising water rates steadily. The farmers are desperate, yet at the first sign of rebellion their water is cut off entirely, their crops ruined. The government is weak, controlled by the Reclamation Company. Hensic lives like a king, surrounded by every luxury and Mars is helpless. If only someone would rid Mars of . . ."

"Hush, child!" The doctor raised a warning hand. "If one of Hensic's agents were to overhear you . . .!"

"But surely in your own home . . .!" The man who called himself Erik gazed at them incredulously.

"No one is safe in any place," Thain muttered. "Spies everywhere . . . dic-

tophones installed during one's absence . . . ah, it is an unhappy Mars to which we have brought you, my boy!"

"So." For a long moment Erik said no word. When at last he spoke, it was in a bitter, yet sad, voice. "Let me thank you, doctor, for all you have done. Someday I will be able to explain who I am, why I must remain silent. Meanwhile, I hope to be of help to you, earn my keep." Then, half-aloud, "Mars . . . ruined . . .!"

**T**HE months that followed the arrival of the man from the void brought pleasant changes to the Thain household. The doctor soon discovered that Erik was his equal, and more, in certain fields of research; and with the aid of so brilliant an assistant his work progressed more rapidly than ever before.

In addition, Anna found in Erik a companion to lift the loneliness of her secluded existence . . . a companion whose friendship grew to mean more and more as the days passed. His oddly outmoded expressions amused her, and she found his evasive mysterious air somehow intriguing, a puzzle that she tried her best to solve.

In spite of all her efforts, however, Erik remained as much of an enigma as when they had found him, a corpse in the void. These facts alone were evident . . . that he was a scientist, that he had lived on Mars in or near Psidis, that his death had occurred some fifteen years before, and that he had a bitter, yet intense, interest in the ruthless, grasping Martian Reclamation Company.

Two things occupied the bulk of Erik's spare time. One, a queer tangle of wires and tubes in a corner of his room, a machine of some sort which he was building of materials from Dr. Thain's laboratory. Just what the ma-

chine was intended to be, he would not say. The other thing that seemed to cause him great concern was the suffering of the people under M. R. C.'s rising rates for water.

Day after day he would set out, either on foot or in the doctor's runabout, and visit the neighboring oases, the wretched little farms where ragged peasants, husbanding their dearly-bought water as though it were liquid gold, sought to grow crops in the dry, brick-red soil. These visits, often of two or three days' duration, were a source of considerable speculation to Dr. Thain and his daughter, yet Erik, with a strange mixture of tact and bluntness, evaded all questioning. Looking at his lean, intense face, his deep, brooding eyes, Anna felt that he was being driven on by some fierce inner emotion, a fanatical passion which superseded all lesser hopes and desires.

**I**T was a hot, scorching night in the month of Elat when the blow fell. Erik was on one of his mysterious trips and Dr. Thain and his daughter were sitting in the living room, watching a television newscast. Anna had just crossed the room to adjust the dials of the televisior when a loud knocking sounded at the door.

"Umm," Dr. Thain raised his massive bulk from the armchair, approached the door. "Some poor devil of a farmer begging for water, I suppose. If that madman Hensic doesn't lower rates soon . . ." Shaking his head, he turned the knob.

Three men in the familiar grey uniform of the M.R.C. special police stood on the threshold. Roughly they brushed past Thain, strode into the room. Their leader, a brutish, black-browed sergeant, motioned his two companions forward.

"Search the house!" he snapped.

"Hurry!"

"What!" The doctor's round face grew crimson. "By whose authority do you dare . . ."

"By authority of the Martian Reclamation Company!" the sergeant interrupted coldly. "Word has reached us that you are harboring a dangerous criminal who seeks to overthrow M.R.C. With thousands of Martian citizens dependent upon us for their existence, the state has granted us ex-officio powers for the protection and maintenance of the water lines." He touched the flame-gun at his belt. "You and the girl stand over there against the wall!"

"Erik . . . a dangerous criminal!" Anna, her face colorless, moved to her father's side. Dr. Thain shook his head wearily, remained silent. Upstairs they could hear the banging of doors, the movement of furniture. After perhaps ten minutes search the two men returned to the living room, frowning.

"Skipped," one of them grunted. "Must have been tipped off."

The leader of the group turned to Dr. Thain, his eyes stern.

"Where is this man, Erik?" he snapped.

"I don't know." Thain shook his head. "He makes many trips . . ."

"Lies, as usual," the sergeant growled. "These swine stick together."

He glanced through the open doorway at the big rocket-plane outside. "Take them out to the plane. We've ways at Psidis of getting the truth out of 'em. They'll be glad enough to tell their friend's hiding place after a few days in the examination chamber!"

Grinning, the two guards stepped forward, flame-guns drawn.

"No!" Anna whispered. "No! You can't . . ."

"Come, child." Dr. Thain, very calm, dignified, took her arm. "I have

friends at Psidis. And Hensic cannot be so cruel as to permit innocent persons to suffer . . ."

"Huh!" The sergeant laughed harshly, reached for his gun. "Fools! Take them . . ."

He broke off abruptly, whirling at the sound of footsteps behind him.

"You wish to see me?" Erik, a thin, fighting smile on his dark face, stood in the doorway.

"By Jupiter!" The police agent frowned, reached for his gun. "Seize him!"

As he spoke, Erik, poised on the threshold, plunged forward. A lurid streak of flame spat from the black-browed leader's gun, singeing Erik's hair. An instant later his fist thudded against the sergeant's jaw, with all the force of a wiry, close-knit frame behind it. Limply the sergeant slumped to the floor.

OF the remaining two police agents one stood facing Dr. Thain and Anna, flame-gun drawn, to keep them from coming to Erik's assistance; any attempt to aid his comrade would, he knew, expose him to an attack from the huge, red-faced doctor. The other agent, recovering from his initial surprise, spun about to face the man from the void. No time to raise his gun, fire; Erik seized the man's wrist, bored in at close quarters. For perhaps twenty seconds they swayed, muscles cracking, faces bright with sweat.

Watching, Anna was tense with anxiety. The two men, breathing heavily, gasping, as they fought . . . the grim expression of the agent who kept her and the doctor covered . . . the sergeant on the floor, stirring weakly; in another moment he would be sufficiently recovered to join in the struggle once more.

Outside, a dust storm from the desert

was rising; she could hear the moan of the wind, the rattle of sand against the windows, see the light of the twin moons grow dim as the clouds of swirling dust covered them with a reddish pall. At the girl's side Dr. Thain crouched slightly, prepared to spring should the guard's gaze turn to the struggle.

All at once Erik's opponent gave a shout of triumph. A quick twist had freed his right arm; drawing it back, he struck with paralyzing force. Erik staggered across the room, toppled to the floor.

"So!" the man laughed gratingly. "You thought you . . . !" The agent's words ended in a gurgling moan. From the floor Erik had fired, using the flame-gun dropped by the sergeant. A stench of charred flesh filled the room; the M.R.C. agent pitched forward on his face, a horrible blackened corpse.

Two of his opponents disposed of, Erik turned to the third, the man who was guarding Anna and Dr. Thain. This agent, seized by sudden panic, acted swiftly. With a quick movement he grasped Anna's arm and, using the girl as a shield, backed through the doorway.

"Don't shoot!" Dr. Thain's voice was heavy with despair. "You'll kill Anna!"

Erik nodded and, dropping the gun, started out in pursuit. A burst of flame, fired over the girl's shoulder, drove him back to the shelter of the house. Helpless, he and Dr. Thain watched the agent force the girl into the plane, saw it leap from the earth with a flare of rocket exhaust.

"Anna!" Dr. Thain whispered. "My little girl! If that madman Hensic harms her. . . !"

Erik, busy lashing the sergeant's arms, straightened up, smiled bitterly.

"Hensic is capable of anything," he said. "We must act now . . . at once!"

"Act?" The scientist shook his massive head hopelessly. "What can we hope to do?"

"Do?" The fierce brooding emotions of the man from the void came to life in a blaze of hatred. "I'll show you what we can do! Wait here!"

He ran upstairs to his room, returned staggering under a load of strange apparatus. One portion of it, the queer array of tubes and wires over which he had spent so many long evenings, Erik placed carefully upon the floor. The other, a small, home-made broadcasting unit tuned to a special wave band, he plugged into the socket of one of the *radite* lamps.

For some moments he adjusted switches, dials, connected wires. At last, with all in readiness, he began to speak into the crude microphone. His voice was vital, dynamic; Dr. Thain felt, somehow, that Erik had waited, planned, lived for this moment.

"Freemen of Mars!" he exclaimed. "Since the death of that beloved old scientist, Hrolf Steinson, the Martian Reclamation Company has been in the hands of Jarth Hensic! No need for me to tell you what Hensic has done since he inherited the controlling interest of the company from his brother-in-law, Hrolf Steinson! You who seek to live in the reclaimed lands know of the rate increases, the crops ruined for lack of water, the terrible price you have been made to pay that Hensic might wallow in unimaginable luxury! Just profits no man begrudges him. Exorbitant water rates we cannot, will not pay! Grain fields dying for lack of water, men everywhere reduced to the most abject poverty, innocent people dying of thirst!"

Erik paused, bent lower over the table.

"In the six months I have been among you I have said that science would find

a way to overcome Hensic's guns, his planes. That weapon has been completed! We march on Psidis at once! Tonight! You who are listening must tell the others in your group! Meet at dawn before the walls of the Central Unit! Strike while you may for the freedom of Mars!"

### CHAPTER III

#### Erik Acts

JARTH HENSIC, president of the Martian Reclamation Company, stood before a window of his luxurious suite in the Central Unit at Psidis. Beneath him lay the great factory, largest of the hundreds which dotted Mars' desert area, a vast array of grey stone buildings, cranes, lifts, slag heaps, and massive machinery, rearing up to form a strange surrealist pattern against the fierce blue sky. Plumes of reddish smoke waved above the tall chimneys and the deep hum of atomic motors arose like the drone of angry wasps.

In long lines across the flat barren desert could be seen atomo-cars, bringing in loads of the rust-laden soil; great inverted cones placed around the factory grounds sucked in the air, to draw from it hydrogen. Ingots of iron, reclaimed, were piled in tall stacks awaiting shipment to all portions of the planet; and huge aqueducts, running like the spokes of a wheel from the Central Unit, distributed the life-giving water to thousands of square miles of irrigated farm land about Psidis. Power . . . the power of life and death over millions of people lay in this and other factories of the M.R.C. Standing there before the window a thin cruel smile passed over Hensic's saturnine features.

"Water!" he whispered. "Life!" And his curved, talon-like fingers

gripped the window-sill until his knuckles were a row of white dots.

Hesitant footsteps sounded in the room behind him.

"Mr. Hensic . . ." A silver-haired old secretary bowed deeply . . . "only one of our agents has returned from the investigation of Dr. Thain. The man known as Erik escaped capture, as did Thain. Our agent was able, however, to bring the doctor's daughter for questioning. I am afraid, sir, that trouble is imminent. Perhaps a less autocratic policy might be advisable. In your brother-in-law's time . . ."

"Trouble!" Hensic laughed scornfully. "Huh! The swine will either pay our prices or die of thirst! All the people of Mars, except those who live on the canals, are dependent upon us! And the canal-dwellers have no interest in our affairs! What if this man Erik did escape? Sooner or later he must fall into our hands! Send in the agent and this girl!"

"Yes, sir." The old man bowed, left the room. A moment later the grey-uniformed special agent entered, accompanied by Anna. Although pale, disheveled, the girl was very lovely in her sheer cello-silk gown. Hensic smiled coldly, moistened his thin lips.

"What occurred?" he demanded, glancing at the agent.

Faltering under Hensic's searching gaze, the man told his story.

"So," Hensic murmured. "This Erik puts three of my agents to flight! Tell me, what sort of man is he?"

"Young, dark, rather hollow-eyed. Aquiline nose, wiry build. He wore a ring with the M.R.C. device upon it."

"Erik . . . lean face . . . and that ring . . ." A look of fear flickered in Hensic's eyes. Then, straightening up, "Ah, but how foolish I am! *He* would be old, now, middle-aged. And he's dead. Can't help but be . . . You,



girl, where did this man come from? Tell me all you know about him!"

Anna stared at Hensic, her face white, but determined.

"Erik is a patriot. He intends to free the people you have enslaved. Beyond that" . . . the girl threw back her head . . . "I will tell you nothing!"

"Brave words," Hensic's pale eyes hardened sardonically. "You'll forget your fine gestures in the . . . examination rooms. Before the day is out you'll be . . ."

A sound of running feet, hoarse voices, echoed through the hall outside. Hensic whirled about as the door burst open. Several wild-eyed men in grey ran into the room.

"Mr. Hensic!" one of them gasped. "Revolt! Farmers, peasants from the reclaimed districts, are trying to force the north gate!"

"Revolt?" Hensic grinned evilly. "I've been expecting this, since last night when I learned of a rabble-rousing broadcast by this man Erik. Use the 20-power flame-guns on this mob, wipe it out. With Erik and his followers burned to a crisp there'll be no more uprisings! The flame-guns, fool! Hurry!"

AS Hensic spoke, the north gate of the factory was already ablaze with the fire of small hand guns. From the top of the massive crystalloid wall, from vantage points on the roof of the great grey factory, guards were pouring a heavy fire into the small band of rebels who sought to storm the gate. Armed with antiquated weapons, crude home-made force rays, the group of ragged, half-starved peasants were mowed down like ripe grain.

"Back! Back!" Erik, his face marked with burns, his clothes scorched by the close-licking tongues of flame, waved his followers toward an outlying

building. Scarce five hundred out of the thousand who had stormed the gate, they dashed across the blackened, seared yard into the warehouse.

"God!" Dr. Thain glanced out at the heaps of charred bodies before the gate. "This is madness! We have no chance!"

Erik did not reply. A hundred beams of lambent flame were playing upon their place of refuge, melting the glass of the windows, heating the walls until it was impossible to approach them. Lying on the floor of the warehouse, the stern-faced peasants raised themselves to the level of the windows, fired quickly with their old-fashioned guns, then dropped out of sight once more.

Watching, Thain could see limp figures topple from the wall of the factory, or roll down its slanting roof. Hensic's men, however, were better armed, better trained, and the losses of the rebels continued to mount. Suddenly the doctor's face fell into drawn lines. Great cylinders were being dragged into place on the factory walls, 20-power flame guns which would blast the warehouse to bits in a few minutes.

"Look!" He gripped Erik's arm, pointed through the inferno of smoke and flame. "Big guns! This building won't last an instant!"

Erik nodded, turned to the tall young farmer at his side.

"You have tapped the power lines, Garth?" he snapped.

The young man nodded. "This warehouse is fed from the power plants of Psidis. Everything is ready on the floor below."

"Good!" Erik nodded. "Come along, doctor!"

On the ground floor of the building, facing a window, was an improvised platform of boxes, bales. Power cables ran to the top of the platform, terminating in a compact array of tubes, con-

densers, filters and spark gaps . . . the same mysterious device of which Erik hoped so much. Studying it, the doctor was able to distinguish a crystal of silicon carbide, resistance coils, tiny electromagnets, and a silver-sheathed projector, not unlike the focal point of a Röntgen ray machine. In spite of its intricacy, however, the device was less than two feet square.

"This little thing?" Thain shook his head hopelessly. "You plan to use that to combat 20-power flame-guns?"

"Right!" Erik bent over the device, made delicate adjustments. "It happens, doctor, that the one thing I know is . . . water. I was brought up, trained to be an integral part of the M.R.C. and as such I spent my entire youth studying water. No time to explain, now, except to say that this machine emanates a stream of especially charged neutrons, neutrons vibrating at such a rate as to have a most peculiar effect upon H<sub>2</sub>O. Like the cyclotrons, the atom-smashers of the twentieth century, this bombardment of neutrons will tear apart molecules of water. In a sense it might be said to reverse the process by which M.R.C. obtains water from hydrogen and ferric oxide . . . that is, it breaks molecules of water down into its component parts, free atoms of hydrogen and oxygen."

"And you call that a weapon?" Thain muttered. "You're mad! I . . ." He broke off as a ranging blast from one of the big flame-guns struck the warehouse. Molten stone dripped, lava-like, down the walls. Heat, unbearable, searing heat, rocked the doctor's senses.

WITH a quick leap Erik sprang to the platform, touched a lever. Reeling, choking, Thain peered out. A thin cone of yellow lashed out from Erik's machine, encircling the heavy battery. And at the point of contact an

amazing thing happened. The guards who manned the guns began to swell, balloon-like, into grotesque travesties of human beings. Then suddenly, as though the balloon had been punctured, they collapsed, fell, shriveled broken things, from the walls. More men and still more, swelling and then deflating as the inexorable yellow ray played upon the rampart.

"What . . ." Dr. Thain's voice was a hoarse whisper . . . what is it?"

"Dessication," Erik said slowly. "I said that all water would be broken down into hydrogen and oxygen. The human body is over eighty per cent water. First the liberated gases, hydrogen and oxygen, swell the skin until, breaking it open to escape, they leave only a dust-dry fragment of shattered bone and parched, cracked skin. I . . . Ah, they're coming again!"

The gates of the vast Central Unit had swung open. In a desperate effort to capture the terrible ray-projector that had destroyed their companions, Hensic's men surged toward the warehouse.

Again Erik bent over the dessicator. Once more the lambent yellow ray shot out, sweeping the line of grey-uniformed troopers. Watching, Thain felt weak with horror. To see them swell under the expanding gases, hear them burst with a sickening pop. Then ghastly, mummy-like things, dry skin over protruding skeletons, toppling to the ground! For only a moment the attack continued. Suddenly the handful of survivors threw down their flame-guns, took to their heels.

"Into the factory!" Erik cried. "After them! Quickly!"

With shouts of triumph the tattered peasants dashed from the warehouse, swept into the huge Central Unit. Onward, brushing aside all attempts at opposition, pouring through the great

workshops, the luxurious business offices.

"This way!" Dr. Thain, his red face exultant, motioned toward Hensic's suite. "Quick, before he escapes!"

A furious roar went up from the crowd of rebels. With one mighty surge they tore open the carved doors, pressed into the room.

Hensic sat behind his big desk, a cold smile on his thin countenance; in his hand he held a small flame-gun. Before the desk, lashed to a chair, was Anna, pale, yet erect.

"Ah!" Hensic glanced up, carelessly. "Guests, I see. Don't be too hasty, gentlemen. It would be so easy to dispatch this charming young woman. Her life shall buy me freedom."

A THICK silence fell over the room.

The crowd of insurgents halted indecisively, staring at Hensic. Dr. Thain glanced imploringly at them, bowed his head.

"So," Hensic chuckled. "I win my liberty. And you thought, no doubt, to find me cringing with fear! Bah! I fear no man . . ."

"Not even me?" Erik pushed his way through the crowd. "Look at me . . . uncle!"

At sight of Erik a terrible change came over Hensic. His face took on a greenish pallor, his lips quivered weakly. The gun fell from his palsied fingers; he raised his hands as though warding off a frightful apparition.

"No!" he croaked. "No!"

"So you remember me, then!" Erik leaned forward, his eyes stern. "Perhaps you recall the day my father, Hrolf Steinson, died. You and I were on Terra then, Uncle Jarth, where I was studying chemistry and you were wasting your brother-in-law's money, living in idleness. We took the same ship back to Mars when we learned of his

death, the *Kylos*, a new liner that spring fifteen years ago. And perhaps you remember that night three days out, when we were alone on the promenade deck, standing by the emergency air-lock,

"It was quickly done, Uncle Jarth, that sudden blow which sent me into the air-lock. A moment later you pulled the release, catapulting me out into the void. Only a second's consciousness I had, as the expanding air rushed from my mouth, my nose . . . and then I was dead! *Dead*, Uncle Jarth, leaving you to inherit M. R. C.!

"Now after fifteen years I have returned, returned from the dead to see justice done!" Erik Steinson's voice cracked like a stinging lash. "Do you remember, Uncle Jarth?"

Hensic, slumped down in his chair, stared at Erik, insane terror in his eyes. All at once he stood up, incoherent words bubbling from his lips. For just an instant he remained erect, then, eyes glazed, clutching at his heart, toppled to the floor. Dr. Thain, kneeling to touch his wrist, shook a sombre head.

"Anna!" Erik sprang forward, cut the girl's bonds. "You're all right?"

"All right," she repeated softly. "Now that you're here."

His arm about Anna's shoulders, Erik faced the group of ragged farmers.

"M. R. C. is no longer a privately-owned company," he said. "I, as its owner, present it to the people of Mars. It is too big, too vital a power over hundreds of millions of people, to remain in the hands of one man. For me, I shall stick to my work as Dr. Thain's assistant . . . if he'll have me . . ."

"Have you?" Anna laughed. "His own . . . son-in-law?"

"Anna!" Quite oblivious to the others in the room Erik swept her into his arms. "I'm glad . . . glad I died out there in the void! If I hadn't, I might never have met you!"

COMING NEXT MONTH

# WORLD WITHOUT WOMEN

BY  
**THORNTON AYRE**

*Author of  
"Locked City"  
"Secret of the Ring"*

ible! Perry Mills created a body patterned after a girl dead four years and tried to make it live. He failed, but from lifeless lips came an uncanny voice, telling an amazing secret.

▼ ▼ ▼

## REVOLUTION ON VENUS

BY BRADNER BUCKNER

KENT STAFFORD and Cap'n Hendricks faced death in the mountains of Venus, hunting the prized "vuldar" whose feathers were worth a fortune. Returning to Hila-Fonda, they found that Oak Harbold had instituted his ruthless rule over the Venus city. Robbed of their fortune, they became hunted fugitives, until Venus rose in revolt, led by a woman.

▼ ▼ ▼

PROFESSOR HARLEY GALE RETURNS in ED EARL REPP'S newest offering. A new story of the hero of "The Gland Superman" and his protege, Wade Henry. Professor Gale invents a super paint, and then conceives the tremendous idea of painting the Empire State Building overnight. Next morning New York awakes to the amazing miracle of the world's greatest building transformed to a blood red spire of terror. But it wasn't paint Gale had discovered—it was molten energy, and an incredible disaster threatened the city.

▼ ▼ ▼

R. R. WINTERBOTHAM presents a chilling story of "the land of living rock." Weiridly they died, those who ventured from the space ship. And then, with the coming of Moon's night, a wave of living rock avalanches out of the dark of the Lunar plains.

▼ ▼ ▼

FREDERIC ARNOLD KUMMER, JR. abandons his thrilling tales of space, to bring us a story laid on earth. A sensational yarn about a "drifting death" that blankets London. Terror sweeps the city as a widening circle of doom engulfs block after block. Thousands die, and buildings crumble, without apparent cause.

▼ ▼ ▼

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- FULL COLOR BACK COVER
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ANNIVERSARY

# AMAZING STORIES

ON SALE FEB. 10

# Trapped by

Blacky Doone was a killer, and he was going scot free. Then from Dale Randall's apparatus came an unearthly voice that unnerved the defense.



His shifty eyes laughed scornfully at the clumsy effort to trap him

# Telepathy

## CHAPTER I

### A Killer Confesses

By EANDO BINDER

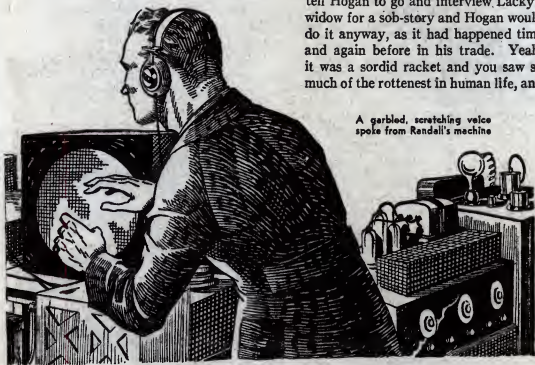
**G**UILTY! Guilty as hell, Danny Hogan ground out to himself as he sat at the third day of the trial. The lecher under prosecution had committed murder and was getting away with it! Hogan felt like climbing to his hind legs and yelling that aloud.

It was the same old story. Witnesses intimidated and non-committal on the stand. A hole-proof though trumped up alibi. The forces of gangdom and the underworld triumphing. Everyone in the courtroom was convinced that the defendant was guilty, even the jury. But they had to go strictly by evidence. And the evidence to convict the mur-

derer was lacking.

Danny Hogan sighed. The jury was almost ready to go to the docket. Soon Hogan would be calling up the city editor and saying: "Doone acquitted—what did you expect? He's as innocent as a baby lamb, his shyster proved. Someone fired that fatal shot into Lucky, the tailor, for not paying his 'dues,' but it wasn't Blacky Doone—oh no! Innocent as a baby lamb, he is. And listen, Chief, if you ask me to interview Lucky's widow, with her five kids, I'll tell you to go to hell, so don't ask. I'm sick of this whole affair—"

And then probably the chief would tell Hogan to go and interview Lucky's widow for a sob-story and Hogan would do it anyway, as it had happened time and again before in his trade. Yeah, it was a sordid racket and you saw so much of the rottenest in human life, and



A garbled, scratching voice spoke from Randall's machine

worst of all you couldn't do anything about it.

Danny Hogan sighed again, miserably. He had hardly noticed that something was going on up front. A tall young man was lugging some sort of apparatus out of a suitcase and setting it up beside the witness chair. Hogan leaned forward suddenly in keen interest. He knew that thoughtful, lean face. It was that of Dale Randall, young scientist over at the university, whom Hogan had once heard speak at an alumni banquet. He was a biologist or something. What the devil was he doing here with that gadget?

A hush came over the crowded courtroom as the prosecutor, nervous and yet eager, addressed the judge. "With your permission, Your Honor, I'd like to have Dr. Dale Randall submit the defendant to a test."

"The evidence of a lie-detector is not accepted in this state," reminded the judge, after a short appraisal of the apparatus.

"It's not a lie-detector," replied the prosecutor. "It's a—a—" But now Dale Randall pulled him aside and whispered in his ear. The lawyer looked up sheepishly. "Well, it is a sort of lie-detector, Your Honor, but there is no ruling against its use, I believe."

"Only with the permission of the defendant," stated the judge.

The prosecutor turned to the man in the witness chair. Blacky Doone leered back at him confidently, fully aware that he was as good as acquitted already. An hour's desperate grilling by the prosecutor had failed to shake his alibi.

"Will you submit to this test, Doone?" demanded the lawyer.

"No. Why should I?"

The prosecutor narrowed his eyes. "Afraid, are you—" The judge

promptly cut him off, but the prosecutor continued to glare at the man, with an unvoiced challenge. Doone suddenly accepted.

DANNY HOGAN knew why. He had nothing to lose. The lie-machine's evidence could not turn the tide, for it was disbarred. And Doone would be a bigger hero among his underworld compatriots for it. It would feed his ego.

Hogan strained forward but could not make out much of the apparatus. It looked like a lot of radio parts. Among them was a large jar of greenish liquid with two electrodes submerged in it. Two insulated wires led from it to a simple headband of leather that Dale Randall fitted around the defendant's head. Two small round plates of copper pressed lightly against his temples.

Dale Randall stepped away from the man and nodded to the prosecutor. The latter stood himself squarely in front of the grinning prisoner, hands on hips in typical lawyer pose.

A dead silence came over the courtroom as everyone leaned forward wonderingly. Danny Hogan leaned forward too, watching Randall's face, wondering why it looked so expectant—

Suddenly the prosecutor's voice barked out at the defendant. "Did you or did you not murder Lucky the tailor in cold blood? Yes or no!"

Danny Hogan's quick eyes noticed that Dale Randall flipped a little switch the instant the last word was out. A soft, scratching sound arose, exactly like that of a blank phonograph record.

The man in the witness chair looked at the prosecutor in mock injury. His shifty eyes were laughing at this clumsy attempt to catch him off guard. His mouth opened to protest his innocence—

But another voice interrupted him—a weird, garbled voice that rose from the scratching of Randall's strange machine.

"—of course I bumped off Lucky you dope but you'll never prove it boy is this a laugh now I'll say no I did not and it'll be over and—"

These words rolled over the hushed room with the dry, mechanical hiss of microphonic apparatus. Blacky Doone tore the headband from him with a shriek and flung it away as though it were a venomous spider. His face had gone ashen. He leaped to his feet, eyes rolling wildly.

"What's the matter, Doone?" asked the prosecutor sharply in the breathless suspense. "Sit down, Doone. I want to question you some more!"

The prisoner sat down, swallowing painfully, obviously unnerved by what had just occurred.

"That machine gave your *thoughts*, Doone!" hissed the prosecutor. "It formed into spoken words what went on in your mind. It was the *true* answer to my question, was it not? Tell the court whether it was or not!"

"It's a frame-up!" croaked Doone, shifting his eyes around like a cornered rat. "It's a frame-up, I tell you—" He was the picture of a man rapidly going hysterical.

"Everybody heard the words in your mind, Doone! You can't deny it or escape it. The words have been permanently recorded. We can run them again and again. You killed Lucky! You fired the shot! Yes or no, answer the court—" The prosecutor drilled in relentlessly, hurling his accusations with the pitiless efficiency of a machine-gun.

**D**ANNY HOGAN watched a man who had heard his own thoughts spoken aloud go to pieces. But he also

watched Dale Randall's face radiate a triumphant glow as he stood quietly by.

Ten minutes later, after the prosecutor had rerun the weird electrical voice from the recording machine, Doone broke down completely and shrieked his confession from the stand. The case was broken! The death sentence would be mandatory now!

Danny Hogan sat stunned, barely able to believe that he had seen what he had seen. Justice meted out at the flick of a switch! A criminal's most hidden thoughts ferreted out!

But just *how* did that machine of Randall's do it? By what scientific magic? He must find out. But first his duty to his paper. Danny Hogan joined the rush of reporters to the phone booths. He gave out the story in clipped, meaty phrases, fairly singing it into the mouthpiece. He had to deny three times that he was roaring drunk before the city editor at the other end of the line acknowledged the report and promised an extra on the streets in 57 minutes flat.

Then Danny Hogan was back in a rush, with the rest of the reporters, to waylay Dale Randall as he left the courtroom, lugging his suitcase with the packed apparatus.

"What you got there, Doc?" was the question hurled at him in a dozen different forms. "How did you do it?"

"I'm sorry, gentlemen. I'm not at liberty—" the young scientist began, with the shy manner of one not used to the public eye. He was cut off by a deluge of entreaties. Shaking his head, he tried to force his way through, but the reporters blocked him, clamoring.

"Boys, boys, let him alone!" It was the prosecutor's voice. He hustled his way forward. "Dr. Randall is not prepared to reveal his method."

"But we've got to have something for our papers! We can't just say he



made Blacky Doone talk with a coffee-grinder!"

"All right, it's a phonograph record, that's all!" growled the lawyer. "Didn't you hear it scratching? Now let us through, boys—" He guided the bewildered young scientist away.

"Phonograph record — nuts!" said Danny Hogan to himself.

## CHAPTER II

### Hogan Gets a Story

DAN HOGAN was still saying "nuts" to himself two hours later when his battered old car wheezed down the shady lanes of the university grounds. He had decided to come here and try to interview Dale Randall. He sensed that there was a bigger story in his gadget, whatever it was, than the whole trial had been.

When Hogan stepped from his car, the familiar voice of one of his rival reporters came from a car about to drive away. "No use, Danny me lad! I thought of it, too. No interviews. The girl said a dozen others of our ilk had been here and been flatly told to go chase a butterfly—in p'lite language, of course. But I know you'll try, like I did, so here's wishing you luck—all bad!" The rival reporter grinned and drove away.

"Hm, no interviews!" mused Hogan. He thought rapidly. Finally he straightened his tie, brushed back his hair, and made his way down the hall to the door marked "Biochemical Laboratory — Dr. Dale Randall." He knocked, whistling softly to himself.

The door opened no more than a foot. A girl's face peered out. She might be attractive behind those horn-rimmed goggles, Danny Hogan reflected fleetingly before he asked, "Daniel Hogan calling to see Dr. Dale Randall, please?"

"No reporters allowed, sorry," said the girl, trying to close the door. Hogan had his foot in it.

"Reporter?" said Hogan with an injured air. He drew himself up. "I'm from Northwestern University's Criminology Department!"

"Oh, come in!" gasped the girl apologetically.

Danny Hogan reflected that some people were so gullible, but it was their own fault. He stepped in briskly.

The laboratory was large and crammed with the tools and materials of a biologist. Hogan felt as though he were suddenly in another world, one where the things that mattered to him meant nothing. Well, he had come here for a story and he was going to get it. He would have to use his wits, though.

Dale Randall, after the girl had spoken to him, came forward, blinking as though he had been awakened from some dream. "You'll have to excuse my assistant, Miss Cole, for asking if you were a reporter," he said. "They're such pests. And I hate notoriety."

"They are pests," agreed Hogan. "Dr. Randall, you did a remarkable thing at the trial today. Our laboratory is interested in all scientific crime-detection methods. Does your machine give the genuine *thoughts* of the person tested?"

"Yes," said the young scientist simply.

Danny Hogan started slightly. He had been secretly trying to convince himself it wasn't that, because the thing was so incredible.

"H-how does it work?" he asked a little hoarsely. He sensed already that he was in the presence of genius, and it almost frightened him, though he would have interviewed the Emperor of Japan without a qualm. Somehow this was

different, like asking questions whose answers would upset the whole normal universe.

"By conversion of thought-impulses into currents of ions," stated the biochemist briefly.

"Tell me the whole story," begged Hogan. "That is," he added hastily, "Dr. Rohr, back at our laboratory, would like to know something about an apparatus that could be so useful in the fight against crime." Hogan had visions of a tremendous scoop for his newspaper.

**D**ALE RANDALL was obviously the untalkative type, more concerned with practicing science than talking about it. Danny Hogan put his best look of avid interest in his face. It was irresistible to most people. Randall proved to be no exception. He turned to his apparatus and pointed to the glass jar with its greenish fluid.

"The solution is the heart of it," he explained. "It contains a new and very complex amino-acid that I synthesized, one that ionizes almost as strongly as sulphuric acid. When I first experimented with it, a few months ago, I made it give off electrical current like a storage battery. Then I knew that it was undoubtedly the stuff that exists in our bodies, in minute quantities, and supplies current to our nervous systems. Amino-acids, as you know, are related to the proteins that make up living matter."

Dale Randall suddenly changed from the casual manner of a class-room lecturer to one of suppressed excitement. His eyes started to glow.

"Can you imagine how I felt? I had a substance of major importance in the mechanism of the living body's nervous system and—brain! It must have some tie-up with mentality, I reasoned. Then one day, only about a month ago,

I got the biggest thrill of all—when my solution responded to mental vibrations! I think I felt like Madame Curie then, discovering radium! Or like Roentgen, finding the X-rays! It was glorious—"

He stopped suddenly, smiling with embarrassment. Danny Hogan thought of the thrill of his first scoop. If he multiplied that about a million times he'd get close to what had shone from Dale Randall's face for an instant.

"But credit where credit is due!" continued Randall, warming up to the subject. "It was really Miss Cole here who gave me the clue!"

The girl who had stood quietly by all this time, blushed prettily. Danny Hogan made a subconscious mental note to see how she looked without those goggles in the near future.

The scientists went on. "Miss Cole suggested that the human nervous-system might complete a circuit with the new electrolyte. We tried it and it worked. A galvanometer showed every throb of the nerves, modulating the current. That made it something of a lie-detector in principle. Then I theorized the next step ahead and it made my head swim. I thought of it a week before I had the courage to try it!"

Dale Randall paused for a moment, a gleam in his eyes.

"Finally I tried it—refined the apparatus and put the mental field, so to speak, of my brain into the circuit. *Every thought-impulse registered on our meters!*"

Both of them had that look now, Danny saw. They glowed! It was as though they had opened a buried treasure and saw sparkling diamonds and shining gold. Hogan sighed. It must be a wonderful thing to be a scientist and discover something like that!

Dale Randall went on, his voice breathless as though he could hardly

believe himself what had followed.

"It was a simple step then to hook up a speaker and *listen* to the thought-impulses! Just as radio-waves carry and reproduce sound, the ions in this new solution carry and reproduce thought-impulses. The thought-impulses themselves are so fine and delicate that no other material can intercept them. But these supersensitive ions migrate instantly to the electrodes when the brain-waves vibrate through them. It was something like detecting the elusive cosmic-rays with a supersensitive electrocope. Before that they had been unsuspected."

"How did you happen to get into the court trial?" asked Danny Hogan, mentally filling in his newspaper story.

"Just as a sort of field test for it—to see if it would work outside the laboratory. It was again Miss Cole's suggestion. She has, I would say, a sense of the dramatic."

The young scientist glanced at his assistant half amusedly, as though above such things himself. "The prosecutor was desperate enough to try it—and of course it worked."

"**A**ND *how* it worked!" Danny Hogan's thoughts erupted. "You take it mighty calm, Dr. Randall. Lord, do you realize what it means? That machine can cut crime to a minimum. It'll ring out confessions like a cash register. I've sat at dozens of trials and ground my teeth down to the nerves, seeing the guilty go free. And simply because there was no way of making them tell the truth. But with this apparatus legalized to make witnesses tell the whole truth and no fooling, why it's a stupendous thing, a—a—*colossal* thing—"

The young biochemist interrupted.

"Yes, I suppose so. Prosecutor Haines said about the same thing. He is

taking care of that end of it." He swept an arm around to his other apparatus. "But I am going ahead with my work. There are a dozen things to find out, scientifically important. The wavelength of thought, the exact mechanism of ionization—it's a new field of science, wide open, unexplored—"

That look again. But Danny Hogan couldn't see any further. Dale Randall broke off apologetically. "But you're only interested in the crime application, Mr. Hogan. Would you like to try the process yourself, so you can report to Dr. Rohr just how it works?"

"Dr. Rohr? Oh, yes, yes—" Danny Hogan unthinkingly allowed the scientist to slip the headband over his temples and saw him snap the switch of his audio-circuit. The scratching sounded out, drowned an instant later by a microphonic voice that had no inflections and ran in a hurried, uninterrupted flow—

"—man oh man what a story this is going to make for the *Star* a super scoop I'll get a raise out of it—"

Danny Hogan sat there frozen, suddenly aware of the trap he had fallen into, while the startled eyes of Dale Randall glared at him frostily.

"—wow am I in hot water now damn this thing anyhow it's too weird to believe how can I stop it oh Lord—"

It occurred to Danny Hogan to jerk off the headband at about the same time Dale Randall snapped his switch.

"Get out!" hissed the young scientist in cold anger. "A reporter! I suppose you'll have all this in your garbled newspaper jargon by tonight. And I'll get a lot of cheap notoriety out of it. My colleagues of science will sneer, thinking I wanted it." He groaned. "Get out, you damned sneak—"

**I**F Danny Hogan hadn't been so completely unnerved by the betrayal of

his thoughts, he would have resented the epithet and given Dale Randall a sock on the jaw, scientist or no scientist. But still red-faced, he slunk out like a culprit. He knew exactly how Blacky Doone had felt, and why he had broken down after hearing his most intimate, secret thought-processes blared out by a pitiless machine. You felt utterly naked, with a thousand searchlights lighting you up—

Plagued by these sensations, Danny Hogan scurried for a quick exit, too disorganized mentally to say a further word. The girl Leah Cole held the door open for him, as frosty faced as her companion. Somehow, that made him feel still lower.

Funny people, these scientists, Danny Hogan reflected outside, drawing in deep breaths and raking together his shattered composure. A lot of pride in their work. He shrugged as he drove away. Anyway, he had a scoop and *what* a scoop!

But all the while that he was writing it up, back at the office, he kept thinking of the cheap deception he had practiced to get it. And that scornful look in Leah Cole's eyes. When he finished the account at six o'clock, he suddenly stuffed it into his desk, missing his last chance to make the evening edition.

He grinned whimsically as he drove back to the university. First time his conscience—ye gods, he actually had one!—had played him this trick. He waited outside the biology building. As he had hoped, they were working late. He could see the lights in their corner laboratory. Almost an hour later, they emerged. They separated at the end of the walk. Drawing a breath, Danny Hogan stepped from behind a tree and approached the girl.

"Oh!" she gasped, then kept on walking.

Hogan fell in step. "Miss Cole,

please listen," he began. "You won't see any story of mine in the papers. I held it. I'll tear it up if you and Randall say the word!"

The girl stopped. "Do you mean that?" she cried, some of the contempt going out of her face. "It would mean so much to Dr. Randall! You see, he hasn't announced his results yet to the *Biochemical Journal*. Scientists that play themselves up in the newspapers before official announcement aren't thought much of. It's a matter of ethics."

"I get it," nodded Hogan. "I'll wait. Now I want you to square it up with Randall for me. I like the guy, somehow. Can you?"

"I'll try—though he raved against you all afternoon." The girl smiled. "I don't think you're all the mean things he called you, after all!"

Hogan winced, having a faint idea. "Let's have dinner together!" he suggested, as though on the spur of the moment. "We can talk it all over."

"Well—okay!" laughed the girl. "But I have to be back at the lab by eight. We work nights, there's so much to do."

In one thing, Danny Hogan found himself right. Leah Cole was a remarkably lovely girl without the horn-rimmed goggles. And she seemed to display a genuine interest in his calling, which he somehow got around to telling about. She was human, he told himself, Fellowship scholar or not. He had found that out about her, which meant she was brainier than any other three girls. But she was feminine, too, and friendly and alluring—

They separated before the laboratory building, the girl promising to try smoothing away the misunderstanding between Randall and himself, for an early meeting. Hogan felt pleased with himself. But he didn't know whether it

was more over saving a man's pride, or gaining the friendship of a fascinating girl—

### CHAPTER III

#### Gangland Takes Revenge

HOGAN met Leah Cole the next evening at six o'clock, outside the laboratory. "Well," he said, "would Randall still shoot me on sight?"

The girl shook her blonde curls, laughing. "No, he's forgiven you in view of the fact that you withheld your story. You can see him tonight."

"You wouldn't be hungry by any chance?" Hogan asked.

"Ravenously!" she agreed.

It was dark outside when they entered the laboratory an hour later. Dale Randall was bent over his worktable, examining some bits of crystal with a magnifying lens.

"Sorry about the other day, Randall," began Danny Hogan. "I didn't understand—"

"Look!" interposed the young scientist, as though he hadn't heard. "Diamonds!"

"Diamonds!" blurted Hogan in astonishment. He leaned over. Though they were small, there were many of them, drying on a pad of blotter paper. Several hundred dollars worth, perhaps.

"I made them!" Dale Randall said next.

"You *made* them!" echoed Hogan blankly. "You don't mean that you—"

"Made them, yes," repeated Randall. "I dissolved carbon in my new solution and crystallized it out in this isomeric form, known in commerce as diamonds." He straightened up. "My new solution is more amazing than I thought. By accident, I used a carbon electrode in an experiment. Trying to measure the inductive strength of my brain-field, I had the quite irrelevant

thought that it would be strange to see the carbon dissolve. So it dissolved!"

"You mean your thought—"

Randall nodded. "Those ions are extremely sensitive to thought. My mere thought that the carbon *might* dissolve started that process! Apparently those ions, charged with that thought-impulse, carried it out as a sort of command!"

He waved a hand.

"But it's not too startling. The chemistry of carbon is strange. And the bio-chemistry of carbon is almost fantastic. We have some forty elements dissolved in our bodies, including metals like copper and manganese. It's an electrochemical set-up, involving neural as well as physical processes. My pure solution of ions responding to neuro-mental impulses could be likened to what has been popularly called the 'universal solvent'. I've already tried platinum, to see it dissolve like a strip of magnesium in acid, when I mentally suggested that the metal dissolve!"

DANNY HOGAN'S head was swimming. Artificial diamonds! Universal solvent! It sounded like never-never stuff, the kind the Sunday supplement writers drooled over. This young genius was making it come true, like waving a wand.

"There's so much to find out, in the science of life!" Dale Randall was saying. "Biology is like a deep, deep pool. The lower you dip, the more remote the bottom is. I've got a start on something new. I hope to find out something of the mechanism of our mental apparatus—in the next ten or twenty years. As far as these diamonds go"—he shoved them aside—"it was just a pretty experiment. They could be made large and more perfect than the natural ones, and much more cheaply, if one were interested."

"One of these days," predicted

Danny Hogan, "the diamond market is going to fall flatter than a pancake, when that solution gets around." He made a mental note to sell his diamond cuff-links at the first opportunity.

"My next step," continued Randall, "will be applying this solution to telepathic communication."

"Telepathy?" asked Hogan calmly. He was almost shock-proof to further astonishment.

"My guinea-pigs" — Randall indicated them, squealing in a cage—"show signs of it. The solution is toxic in concentrated form, like acid. But it can be given in small, dilute doses. The after-effect is merely a temporary fever. But for an hour, before the dose wears out, the inoculated animal will sit and sniff and act as though it were *listening* to something. I suspect that the ion-solution in its veins picks up mental vibrations and transmits them to its brain. I haven't tried the experiment on myself yet, mostly because"—he smiled at his assistant—"Miss Cole suggests caution. We will have to determine its exact toxicity first."

"Telepathy, on top of all the rest!" murmured Danny Hogan. "Boy, what a story—" He broke off, flushing. "Don't worry, Randall," he added hastily, "I won't give it out till you say so."

Dale Randall suddenly extended his hand. "I like you, Hogan," he said. "I'm sending my report in at the end of the week. After that, you can print your story. I promise you that no other reporter will have it."

"Fair enough," grinned Hogan. He was grinning still more when he left. Leah Cole had promised to have dinner with him the next evening again. And Danny Hogan had never before asked a girl to dinner three times in a row.

an enjoyable dinner together, it was quite dark. Driving down the winding university's lane, Danny Hogan suddenly wrenched at the wheel. His car spun to the side just in time to avoid being struck by another car that had loomed up almost silently from the other direction. It had no lights. It careened by at a reckless rate.

Cursing under his breath, Hogan straightened out his course. "You'd think these college punks would have enough sense to go slow without lights," he grumbled.

"They weren't college boys," said Leah Cole, puzzled. "I had a brief glimpse of them and they were rather hard-looking, older men." She laughed a little shakily. "For a moment, in the excitement, I actually imagined that in the back seat they had a man bound and gagged!"

"You've been seeing too many gangster movies," bantered Hogan.

"I guess so," confessed the girl. "Because yesterday I was almost convinced there was a man lurking outside the laboratory, keeping an eye on us—oh, it's so silly! I'm ashamed of myself."

Hogan looked at her queerly. "Yeah, it's silly," he said. "Only I wish you'd told me—"

They entered the laboratory a few minutes later, expecting to find the young scientist hard at work, since the lights were on. But he wasn't there. The girl gasped as she looked around. A chair had been overturned, several flasks lay on the floor shattered, and a row of books on Randall's desk had been knocked over.

"He's gone!" whispered Leah Cole. "And there's been a struggle here—" Her eyes became horror-stricken. "That car—those men, Danny!" she almost shrieked. "They came and took him away, bound and gagged! Why should they do that,—what does it mean?"

WHEN they were returning to the laboratory that next evening, after

Danny Hogan's eyes went hard. They're taking him for—a ride!"

"But who would do that, and why?" wailed the girl half hysterically.

"The avengers of Blacky Doone!" snapped the reporter. "Oh, I could kick myself for not foreseeing this might happen! Doone was part of a powerful underworld ring. Naturally, when they read about it, they wanted to get the man whose gadget forced out Doone's confession. They had a look-out planted—the man you saw lurking—to see when they could get Randall. Now they'll take him out to some lonely spot and—"

HE stopped. Leah Cole seemed about to faint. But instead she suddenly drew herself up. We've got to do something to save him!" she cried nervously.

"Wish we could!" groaned Hogan. "About all we can do is notify the police—" He dived for the phone and dialed rapidly.

"Hello? . . . Sergeant Murphy! . . . Danny Hogan calling. . . Never mind how I've been—there's been a kidnaping! . . . Dr. Dale Randall of the University, abducted by Blacky Doone's gang. Send out all your squad cars, on every highway leading out of the city! . . . Get going—"

Hogan slammed the phone in its cradle and turned back to the girl. "There! That'll stir 'em up. They're sending a squad car here, and all the rest out on the road."

Suddenly his face fell. "But I'm afraid it's too late!" he muttered despondently. "No one knows just where they'll go and it'll be all over soon. They work fast. Take it easy, Leah. We can't—"

"Look!" broke in the girl. She pointed to a small flask on Randall's desk, half filled with greenish fluid. "It was full when I left. He drank some of

that. It's our new solution!"

"What—poisoned himself, knowing what was coming?" gasped Hogan in dismay. "I didn't think he was that type."

The girl, without answering, suddenly grabbed up the flask and raised it to her lips. Hogan clutched her wrist.

"I can't let you do that, Leah," Hogan panted. "Do you know why?—because I care for you! Because I—I—"

"You fool!" cried the girl. "I love Dale Randall!"

SHE wrenched loose from his suddenly limp hand and gulped down the liquid. She gasped and choked after it was down, but recovered.

Danny Hogan had stood like a wooden Indian, a stunned look in his eyes. He came out of it now.

"But why did he take the stuff?" he asked bewilderedly.

"Telepathy!" snapped Leah Cole. "We believe it means that. We were going to try it soon. Dale must have thought of that at the last second, and drank half the solution before they could drag him away. He knew I'd notice it was half gone. Now be quiet while I concentrate!"

The girl's face became deeply reflective in the next minute. The pupils of her eyes contracted. Hypnotic concentration forced her forehead into deep wrinkles. Hogan, watching dazedly, saw her face light up suddenly.

"I hear him!" she whispered tensely. "His voice—by telepathy!" She seemed to listen for a moment. Then she whirled toward the reporter. "Highway 67, Danny, is where they're driving now, going through Oak Park, heading for the country—"

No more than a minute later, followed by the squad car that had just ar-

rived, Danny Hogan's little car rattled wide open down the nearest boulevard. It spun around a corner a mile down with screaming tires, onto Highway 67.

Danny Hogan sat with a tight grip on his wheel, driving as he had never driven before. Leah Cole sat huddled in the corner.

"Oh, Danny, pray that we get there in time!" she half sobbed. "I wouldn't want to live if he were gone. I've loved him ever since I first met him, though he's never noticed me—that way."

Hogan took an instant to glance at her, sympathetically. "I know how you feel, kid—I'm praying with you." His lips tightened a little.

Her hand touched his arm. "Thanks, Danny. That's about the sweetest thing you could say, since—"

She stiffened suddenly, again going into a semi-trance. A little later she clutched his arm. "Wait—slow down! They turned off here somewhere. Dale is telling me that. Into the woods. There!—right there, where that dirt road turns off—"

**T**HE gun-battle was short and sweet. Two of the culprits were shot. The two remaining surrendered. Hogan and Leah, watching from the sidelines, ran up to the kidnap car, when the battle was over.

"Dale, are you all right?" gasped Leah.

But it wasn't till Hogan had loosened his gag that Dale Randall was able to say, with a grin, "Say, that telepathy worked fine, didn't it, Miss Cole?"

"Yes, it did, Da—Dr. Randall," agreed the girl. Hogan saw a shining light in her eyes dim and fade.

"There's another story for you, Hogan," continued the scientist, as though nothing untoward had happened. "Trapped by telepathy, or something like that."

When they were all squeezed into Hogan's car, the reporter asked, "Hospital or home?"

"The laboratory!" responded Randall, in surprise. "I want to make notes of the telepathic rapport Miss Cole and I had, though its effects are worn off now. As for this slight fever we have, it'll go away. I won't keep you long at the laboratory, Miss Cole."

"Yes, Dr. Randall," said the girl.

Danny Hogan tried to thrill himself with the thought of the scoop in his hands. But another thought buzzed in his mind, tortuously, till something clicked. Then he smiled strangely.

When they were back in the laboratory, Danny Hogan looked from Leah Cole's face to that of Dale Randall. "Randall," he said, "will you do me a favor? Slip that thought headband on. I want to ask you a couple of questions, to sort of round out my newspaper article with a personal touch."

The young scientist complied, though a bit mystified. Danny Hogan put his hand on the audio-switch that Randall pointed out, and drew a deep breath. The flip of a switch, he told himself wryly, was like the flip of a coin—

"Randall, do you love Leah Cole?" he asked.

The weird instrument promptly gave its microphonic answer: "Why of course I do though I hadn't thought about it definitely—"

Hogan flipped off the switch. He had picked heads and flipped tails. Then he glanced at them. That look again, in both their faces. But now more glowing than it had been before even. Like they had discovered all the secrets in the universe at once.

"Well, what are you standing here like a dummy for?" Danny Hogan told himself. "You've got a triple-barrel scoop to write up, so get going!"

And he went.



# THE CITY THAT

The artificial coral made a sensational and lovely building material. Scully visioned great wealth as he forced Cort Hardin to devise new uses for it.

## CHAPTER I

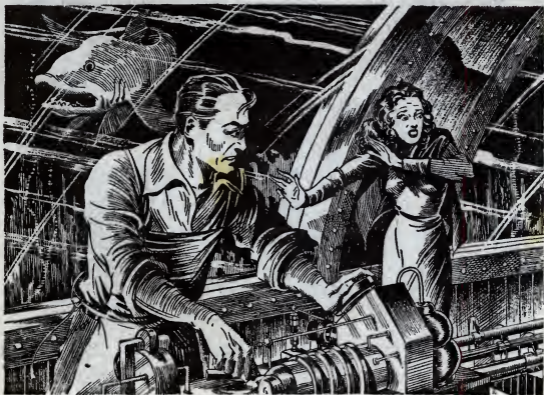
### The Coral Machine

A STRANGE sense of warning plucked at Scully's sleeve as he shook hands with Cort Hardin on the dock before the latter's island home. Hardin's wife stood beside him. Both were smiling, and obviously excited at the visit of an American down here at the bottom of the Pacific; but there was an unmistakable expression of fear or suspicion on the faces of both.

Over the roar of the departing speed-

boat, Scully's voice was raised in greeting: "Well, it ain't every day you run into an American down here, is it? A team of horses couldn't keep me away when they told me there was a countryman of mine and his wife on the other side of the island."

"Glad you came," Hardin smiled, but his eyes told a different story. "Helen and I haven't seen a white man in ten months!" His arm slipped about the slim waist of his young wife; ordinary affection it looked like . . . and yet Paul Scully, who knew black men and



Hardin tripped a lever, and the equipment burst into life

# WALKED BY ED EARL REPP

white, felt certain it was meant to reassure her, to tell her not to worry. Then he shook off the feeling.

"They tell me you're an inventor or something," he grinned. "You wouldn't be testing the old theory about the man that builds a better mousetrap, would you?"

Hardin laughed. "Hardly that," he assured the pearl trader. "But you can't very well study coral in the States, you know."

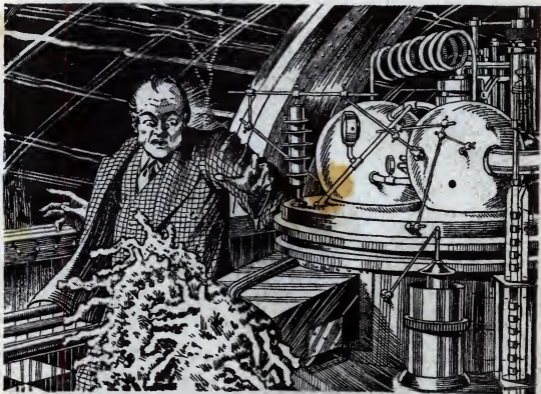
Scully's fat, sweaty face puckered disdainfully. "Seems to me nature's got coral pretty well in hand herself," he snorted. "You trying to develop some new species or something?" His thick lips were contemptuous; he had

his opinion about the half-crazed naturalists he had run across wasting their lives in the study of polyps or rotifers that weren't worth a tinker's dam.

The pretty brunette who was the young naturalist's wife came to his defense. "Cort can show you things in his laboratory that couldn't be produced naturally in two hundred years!" she said enthusiastically. "Why, he can grow a foot of coral in ten minutes!"

Hardin laughed and winked at Scully. "The enthusiasm of the very young," he scoffed. "Come on up. I'll show you around if you're interested."

Scully nodded, and they ascended the worn steps to the porch of the low,



Scully's face was drawn into weird lines of incredulity

rambling building on the very edge of the horseshoe-shaped bay. He sensed the dynamic eagerness in the younger man's voice, in spite of his effort to act casual, but his own mind shared little of his own interest.

**P**EARLS were about all that interested the black-haired trader. He would rather find a pink pearl that scaled twenty grams than discover a hundred new varieties of coral or crab or anything else that lined the bottom of the ocean. He had sailed fifty miles out of his way in order to scout this section. Now he had visions of being held up for half a day by a friendship-starved scientist, when he could be ferreting out possible finds among the natives. But his heavy, rounding shoulders shrugged under a sweat-soaked white coat and he trudged after Hardin.

The scientist, in his early thirties, looked more like a native diver than he did a man of science. Brown as a penny, his body was tall and well proportioned, with long muscles rippling smoothly beneath a thin, cool shirt. He turned down a stairway in the main room and led the way to a below-floors laboratory.

He was intensely eager to show his workroom to Scully, for it had been long since he talked to a white man. Helen, too, stayed at their side and interpolated her husband's scientific explanation with little side-remarks of her own.

It was gratefully cool in the cement-walled room. The tropic heat of the outdoors was forgotten down here. About the room were small galvanized tanks and a large work table equipped with a microscope and dissection apparatus. The west wall was a dark green, and as shiny as porcelain. Scully was puzzled by it.

Hardin hurried to the light switches

and flicked off the overhead dome. Instantly a cool, green light flowed into the room from the wall. A gasp of amazement parted the stout pearl buyer's lips. "For Lord's sake!" he gasped. "We're right on the bottom!"

It was a fact. The wall was merely a thick partition which screened the room from the waters of the lagoon. Beyond the glass, in the green waters that caught the sunlight, could be seen gaudily-colored fish, waving sea-plants, coral beds. The scene was one of indescribable beauty. Now Hardin flicked on a small globe dangling down in the middle of the glass wall, and almost instantly fish commenced to congregate curiously, staring in at the light.

A five-foot shark loomed out of the darkness beyond the light and swam up curiously. Scully gasped and flinched involuntarily. A beautiful parrot-fish with its multi-colored streamers flashed into view and was gone.

The scientist turned and smiled briefly. "But this isn't getting us anywhere," he objected. "Out there is my schoolroom. In here is my laboratory. I'll show you what I learned out of my watery text." The light went on again, and he went to a table where a curious device of gleaming copper was stationed.

Scully's piggyish eyes blinked at it. It was unfamiliar to him. It looked like the tops of two large copper spheres set into a shallow brass pan, and connected to each other by a series of pipes. Gauges and lead-offs dotted their gleaming surfaces. One main tube, perhaps two inches thick, led from each dome to join on the table itself, their confluence ending in a wide, flat opening.

He turned his attention to the naturalist himself as he prepared to start

the apparatus. Again that probe of memory jabbed his brain. He was definitely sure that Hardin was uneasy because of his presence, even if eager for company. And he was almost as certain that he knew the man's face from somewhere. . . .

**C**ORT HARDIN was speaking. "This may be as impractical as a wooden anchor, but . . ." he chuckled and a boyish grin flashed over his lips, "you'll have to admit I've got something here! Just what—" He shrugged and left it at that. Then his fingers were raising a bit of pink coral from a beaker of salt water. He dropped it through a hole in one of the domes.

He talked on as his foot tripped a lever and a battery of electrical equipment below the table burst into life. The copper spheres vibrated a little. "You'll excuse my language, but some of these things can't be said in two-syllable words. To put it briefly, that coral I dropped in was a bit of sclerodermic coral that has been two years in growing. The opposite tank, from which you may observe some curious blue steam arising, contains the substance it feeds on—plus some additions of my own that seem quite acceptable to the actinozoa's palate.

"When those elements are brought together with the right temperature, atmospheric pressure, centrifugal action, and a few other conditions I won't try to explain, the coral achieves a rate of growth that leaves its oceanic brothers in a cloud of dust. It's not at all uncommon for—but, look!"

Scully's eyes went to the opening at the juncture of the two pipes. His brows went up into his greasy forehead. He muttered something unintelligible as surprise claimed him.

From the opening was writhing a lumpy, pinkish mass that spread across

the table like dough. Hardin bent across the table to tap its surface with a pencil. The doughy mass gave off a solid, sharp click. It sounded as hard as steel!

"There're fifteen years of growth lying there!" he nodded emphatically. "It can't be told from ordinary coral. It's just as hard, just as durable."

His wife smiled at him, enjoying the other's mystification, for her mind had been quick to detect Scully's contempt for her husband's occupation.

"I could fill this room with coral in a week," the scientist said thoughtfully. "Give me a big enough workshop, and I could create any amount of it—though I'm sure I don't know what I'd do with it!"

**B**UT Scully was rushing forward to examine the artificially-grown coral. For a moment his breathing was loud in the room. His face shone under the bright light, drawn into weird lines by his intensity. Suddenly he whirled on the man of science.

"You don't know what you'd do with it!" he cried. "You don't know. . . . My God, Hardin—can't you see farther than the end of your nose? It'd be the best road-surfacing material we've ever known! It'd be a beautiful, permanent material to construct houses. It could replace nine-tenths of the industrial plastics. We might even use it for dental fillings!"

A frown of impatience crossed the other's brow. "Eventually, perhaps," he conceded. "But there are years of research to be done yet. A thing like this is dangerous to try without plenty of study. Suppose it didn't hold up?"

"Hold up!" Scully sneered. "It's as hard as cement." Suddenly he reached forward to grasp the other's lapel with a pudgy fist. "Listen, Hardin. I know how to put a thing like this over. Sup-

pose we got together on it. I'll work this thing so you can make millions!"

Hardin shook his head firmly, annoyed by the greedy pearl buyer's trying to insinuate himself into his discovery. "It isn't ready," he repeated. "As far as the money goes, I've had my fill of big business."

Helen darted him a warning glance, which was not lost on Scully. He blinked at the pair of them. Suddenly his mind was flashing back into the past. Softly he echoed, "Big business! Now where did I hear. . . ." And then he stepped back and laughed. He laughed louder and louder, until Hardin looked meaningfully at the girl. But the other was far from insane.

"So that's why a smart bird like you would be out here in the middle of the Pacific!" he mocked. "I'll just bet you've got your fill of big business! You should have—with rewards out for you for five years!"

Hardin stiffened. And then he slumped. He listened dumbly to the trader as he went on, tearing at him like a mastiff at the heels of a doe.

"We get papers down here. I thought I recognized your face, young fellow. Wasn't it the House of Waterman you helped build with some other crooks and then sneaked out of when it collapsed? And let a few hundred investors go hungry because of the four of you." His fleshy mouth twisted disdainfully.

Abruptly Cort Hardin got hold of himself. "I was in it, yes. But they used me just as a front. I didn't know what was going on. When I found out, I left the country rather than suffer for their crimes. I sent back all the money I had, to help as much as I could."

"But that doesn't make you any whiter in the eyes of the law, does it?" Scully grinned. "I'll bet if I was to send a cable to the States. . . ."

Helen rushed to her husband's side. "But what good would it do you?" she pleaded. "Cort was innocent. You couldn't make anything by simply giving him up."

Scully nodded. "That's right, Mrs. Hardin. But I could make plenty by not giving him up—if he'll listen to reason and go into business with me."

A frown traced its lines across Cort's brow. "Go into business—?"

Scully smiled blandly. "We might call it the 'Island Building Materials, Incorporated.' No. How about 'Scullycraft'? That's good. We'll supply bricks, paving, plastics—a hundred things. Of course I'll have to put the business in my name, since you're wanted. But I'm not greedy. I'll give you a salary!"

Cort Hardin lurched forward and his strong hands locked about the other's throat. For a moment a red blaze blinded him to everything but the flushed, evil face of the pearl trader. Then the girl's tugging hands and tearful voice recalled him. With an effort he let his hands drop and stood back. His mind made a quick survey of his predicament.

And every way he turned he could see he was in trouble. He could murder the man and preserve his secret; and be hanged for it. He could run away again, and eventually be caught once more. Or he could give in to the man's demands, sign his invention over to him, show him how to run things, and hope for a chance to clear himself.

But there was his wife to think of, and that consideration drew him to the one possibility: to give in to Scully's greed. Panting a little because of the strain he was under, he said quietly, "All right, then. We'll go back with you. But if my chance ever comes. . . ."

Scully's laughter cut him off. "I'll see that it doesn't," he said. "In the mean-

time, start packing. We're taking the first boat back to the States!"

## CHAPTER II

### *Scullycraft Becomes a Business*

**I**N the months that followed, Hardin and his wife learned new things about misery. April found them in Los Angeles, living in a small house behind the factory Scully had built. While he lived in constant fear of being taken by the police, he was forced to spend all his time perfecting "Scullycraft." Helen anxiously watched his face grow thinner and sharper.

The factory was not a large one, but to Cort, laboring alone in its gloomy expanses, it seemed as large as a penitentiary. All day long he worked in the laboratory, striving to answer Scully's demands for speed. He had been able to increase the production rate of coral by seventy-five percent; now he must find a way to make its texture finer, so that it would provide a perfect surface for ornamental work.

But at every turn the naturalist was blocked. When he combined two specimens of actinozoa that should have produced a close-grained skeleton because of their own small structural pattern, he got coral with holes the size of those in Swiss cheese. When he did produce anything fine enough for commercial use, it proved to be as soft as earth.

It seemed that the great venture was doomed to failure. The jewel merchant stormed about the laboratory threatening to expose Cort. Cort would grow angry and frightened, and the work would suffer proportionately. Then, one day, a new idea sprang into the scientist's mind. Why not make the coral under great pressure?

*Pressure!* That was it. Undersea growths were used to great pressures.

Their skeletons were made to withstand it. Why not, then, triple, quadruple, the normal pressure and crush their internal cavities down to a fraction of their normal size?

He tried it—and it worked. A translucent pink material as fine as marble and even harder was the result. Scully stood watching it ooze out of the small testing tank, and his eyes grew shinier by the moment. "That's it!" he muttered. "That'll make the building boys sit up and take notice. They can't stop us now!"

"No," Cort breathed. "They probably can't. That's what I'm afraid of." For in his own analytical mind there remained still a hundred questions about his invention.

**I**NSIDE of six months a new word sprang into national consciousness: "Scullycraft!" From all over the country, builders, architects, artists came to Los Angeles to see the miracle of man-made coral, where the industry was springing up to mushroom growth. Cort had done his work well.

A dozen different machines had sprung into life from his fertile brain. Crowds followed the curious, street-cleaner-like paving machines that rolled down the highways, laying a lumpy, pinkish mass that a polishing machine would grind to glass-like hardness and skid-proof smoothness.

From the monstrous cauldrons within the walls of the factory came enormous masses of multi-colored coral that were cut to the size of slabs of marble. Skyscrapers raised themselves into the sky; not ugly, gray-white structures, but slender fingers of opalescent coral—pink, white, green, a dozen other tints. In the memorial parks beautiful monuments were placed among the works of the masters.

It was a poor street indeed that did

not have a coral sidewalk or at least an ornamental coral light standard.

And in the small house behind the factory, Helen tried to console her husband, who, unimpressed by the success of Scullycraft, was waiting for catastrophe to strike.

"Maybe we can save enough to leave again," she said hopefully. "We did it once. I'm still ready to go anywhere with you."

A sigh swelled the young scientist's chest. "And we'd be caught again," he said despairingly. "But aside from that, there's this—Scullycraft stuff. How do we know it's going to hold up? It's hard, yes. But will it stay that way?"

"Doesn't regular coral do it?" the girl asked.

"Sure, but. . . . This isn't regular coral. It's practically the same, except that I've learned how to make its texture so much finer. Suppose it develops some fault!"

Helen was on the point of answering when the door opened. Scully marched in.

The ex-pearl buyer was attired in a loud summer suit and a pink silk shirt. He was the typical newly-rich, and rich he was. Scullycraft, stolen from its rightful owner, had brought him almost a million dollars. Now, as he sprawled his bulk in an armchair, his face was flushed with interest.

"Remember I mentioned dental plates a while back?" he began abruptly. "Well, I got a better idea now. You said this coral stuff feeds on bacteria and all that. Aren't there bacteria in decayed teeth?"

Hardin nodded, fearing the worst.

"All right, then," Scully said vociferously. "The next thing we're going to do is start selling to dentists! We could put a tiny piece of live coral in a tooth cavity with a drop of your solu-

tion. The coral would feed on the bacteria of decay and clean out all the dead part without any need of drilling! After it filled the cavity, we could kill the coral and grind it down smooth!"

Hardin took a deep breath. "Good Lord; what next!" he breathed. "Can't you wait a year or so, until we know what's going to happen? Maybe the stuff will fall to pieces in six months. Maybe it'll turn to liquid. Maybe—well, how can I even guess? Science is based on unending research. A thing isn't perfected until it's been investigated. Every invention is guilty until proved innocent!"

Scully stood up. "The stuff satisfies me," he snarled. "See what you can work out tomorrow. Don't get restless, or I may find myself talking to headquarters some day soon, about a crook the government would give a lot to find!"

Cort Hardin clutched the arms of the chair for support as the other went out. He left his finger-marks deep in the upholstery. For a half-minute he did not speak, and then he said tensely, "I've had all I can stand. There's just one possible way out. I've got to try it!"

"What is it?" Helen asked hopefully.

Hardin seemed not to have heard her question. But after a moment he breathed, "It's a long shot, but it's worth it. In our position, you surely can't lose much!"

**B**UT for a month he held off, hoping something would happen to save them without the necessity of taking such a risk. Scullycraft was skyrocketing up in a manner that frightened Hardin and dazzled the greedy pearl buyer. Scully was constantly after him now to rush the dental idea through. There were millions in it, he argued; why wait? And one day, when he had given a last warning to Cort to do some-

thing about it, the scientist knew he could wait no longer.

Clouds had piled thick, hot, and heavy that morning over the city. It looked to Cort, as he headed up Wilshire Boulevard, as though the first rain of the season was on the way. Late September was still hot, with the thermometer hovering in the nineties much of the time. The air was oppressive, as moist and stifling as that of the tropics.

When he had entered the exclusive shopping district, the first big, splattering drops fell. They splashed on the broad coral street in a glistening sheet. The wide boulevard, famous for its exclusive shops and apartments, had recently been paved with Scullycraft. Along the sidewalks, pale green light standards harmonized with the pastel pavement. Tall buildings, delicately shaded, glistened in the rain.

Cort's first warning that anything was amiss was a slight bumping beneath the car. He frowned and released the wheel to test for a flat. But the car held the road, and, aside from its bumping as though it were suddenly running over a corduroy road, went along all right. Cort shrugged it off and decided the springs needed grease.

*Crash!*

Without warning the car leaped in the air and came down sideways, slewing about dangerously to a stop. With an oath the scientist yanked on the brake and leaped out. All about him he saw other cars stopped in strange positions.

All at once he leaped aside and shot a startled look at the spot where he had been standing. Before his eyes the pink coral pavement was breaking up and growing large and ugly bumps! Over the sheeting hiss of the warm rain could be heard a low roar that stretched out in both directions along the street.

The thing that had stopped his car,

he saw on glancing back, was a great block of paving that had been hurled from its place. There was no mistaking it. The coral was growing once more!

Cort Hardin stood rooted there in the middle of the street, while rain poured from his soaked clothing. His mind flashed over the strange phenomena and from it he wrested the secret of what had happened. Beneath the surface of the coral there was still living, dormant, organic life! Perhaps heat produced by the process under which Scullycraft was evolved resulted in temporary inactivity of the calcareous actinzoa. Now, stimulated by the hot rain, it was springing into life once more!

His attention was yanked away as a loud crash shattered the low roaring of the breaking pavement. A few hundred feet away a section of one of the magnificent coral apartment houses had crashed to the street! Before Hardin's very eyes the buildings were growing grotesque. And now men and women ran into the street screaming as though an earthquake were taking place.

A lamp-post swished through the air and thundered into the broken pavement almost at the scientist's feet. The narrow escape from death galvanized action into his limbs. He darted to the sidewalk and raced for the nearest street which had not yet been paved with Scullycraft.

**I**T was nearly dark when Cort returned to his anxious wife. All afternoon she had sat by the radio listening to lurid reports of the havoc within the city. Dozens of automobile wrecks had been caused by the shattered pavement. A number of persons were injured by falling masonry, though no one had been killed. A strange sight was to be seen in the city's cemeteries, where monuments were sprawling grotesquely into caricatures of statues.



Helen threw herself into his arms with a glad cry when he came in the door. "I thought you'd been killed, or—or they'd caught you," she wailed.

"Not a chance," he said hurriedly. "Now, don't ask any questions, but how soon can you pack?"

"Pack?" Her eyes widened. "You mean we're—"

"Going back," he said excitedly. "Back to take up my work where I left it off."

She was mystified and excited, but his anxious face sent her hurrying away to throw their things into suitcases in obedience to his order. In fifteen minutes the small house had been locked behind them. Cort piled Helen and the luggage grimly in the car and dived in himself. With a skidding of gravel they slewed from the drive.

But escape was not to be so easy. Before Cort could send the car ahead, a black police sedan was pulling in beside them.

A gasp of dismay came from the girl's lips. She could not speak, but in her face was mirrored all her sharp disappointment at having been so close to escape, and then to have to be taken. . . . She watched Cort get out and wait for the two radio officers.

"Sorry to be botherin' you again, Mr. Hardin," one of them smiled quickly. "We got a call to pick you up."

A frown gathered on the scientist's face. "But I thought—" he began.

The cop's good-natured red face split in a grin. "Oh, now don't be worryin'," he advised. "And the little lady can dry her eyes, too. The Waterman case is still closed as far as we're concerned."

A sigh of relief raised Cort's chest. He turned a happy face to Helen's. "I should have told you before," he said, "but you had enough to worry about. I got fed up with waiting for the police to find me, so—I went to find them!

I'd hoped for a long time that something might have happened to clear me. Well, it had. One of my partners turned state's evidence just before the trial. He cleared me and threw all the blame on himself and his two cohorts!"

Helen's face was disbelieving, and then radiant. Her eyes went past Cort as the officer added, "And all we want now is to find a gent named Scully, who was the president of the company you worked for. He's going to be pretty busy for the next few months trying to wriggle out of a couple of hundred damage suits. Not to mention our own charge of selling under false and misleading advertising."

"There's nothing I'd rather do than tell you where he is," he replied sincerely, "but he's probably skipped."

Then his gaze swung about as Helen added quickly, "You can find him at a Doctor Palmerston's. He left about three with a small piece of coral and some of your solution. He didn't say what he was going to do."

"Doctor Palmerston's!" Hardin gasped. Then a gale of laughter doubled him up. His face grew crimson with mirth as the others stared at him. Finally he managed to stop laughing.

"Gentlemen," he said seriously, "if you want to take your prisoner alive, I think you had better hurry. And while you're at it, it might be well to take along a pneumatic hammer and a small charge of black powder.

"Doctor Palmerston is Scully's dentist, and it's not hard to guess why he took along a bit of coral and some growth-solution. About this time he'll be realizing what I meant when I advised him to take it easy—because there isn't a better place for his coral to grow than in a warm, moist place like the human mouth! Unless I miss my guess, he'll have Scullycraft running out of his ears by now!"

# SCIENCE QUIZ

## TRUE OR FALSE

1. The ermine is not white in the summer. *True.... False....*
2. Comets are sometimes visible in the day time. *True.... False....*
3. The "false dawn" is the zodiacal light seen before sunrise, due to reflected light from particles in the upper atmosphere. *True.... False....*
4. An astronomical unit is the distance from earth to the nearest star. *True.... False....*
5. There are nearly five hundred species of humming birds. *True.... False....*
6. The average full grown ostrich weighs 300 lbs. *True.... False....*
7. Totipalmate birds are those unable to fly. *True.... False....*
8. The periodic law of chemistry was devised by Mendeleev. *True.... False....*
9. The three primary emotions are love, anger, and fear. *True.... False....*
10. In the nervous system, the impulse of sound travels faster than an impulse caused by the sense of touch. *True.... False....*
11. The brain grows fastest at an early age, growing five times as fast during the first five years as at any other later period. *True.... False....*
12. People who are double-jointed have two joints in place of the usual one. *True.... False....*
13. Birthmarks are clusters of small blood vessels directly beneath the skin. *True.... False....*
14. The sartorius muscle is the longest in the human body. *True.... False....*
15. Practically any kind of insect will die when exposed to a heat of 125° Fahrenheit. *True.... False....*

## STRIKE OUT THE WORD THAT DOES NOT CONFORM

1. Orion, Betelgeuse, Parallax, Alpha Centauri, Sol.
2. Neon, hydrogen, argon, gasoline, nitrogen.
3. Bohr, Schrödinger, Frost.
4. Prussic acid, cyanide, calcium, arsenic, bromine.
5. Brontosaurus, Pterodactyl, Tyrannosaurus, Thesaurus, Gigantosaurus.

## SCRAMBLED SCIENCE TERMS

1. A small, furtive animal. SAWLEE....
2. An astronomical term. DAZICO....
3. A star important to mariners. LISPORA..

4. An explosive. TIDYNAME....
5. A poison. SINRACE....

## SCIENCE TEST

1. In an airplane, the density of the air is determined by: an altimeter, a thermometer, an air speed indicator.
2. The following animal eats bees: Marmoset, skunk, bear, weasel, field mouse.
3. The sun is in the following constellation: Orion, the Great Bear, the Pleiades, no constellation at all, Ursa Minor.
4. The Southern Cross has the following number of stars: Eight, fourteen, six, four, five.
5. One of the following is not an odor: fragrant, burnt, acid, eclipitic, caprylic.
6. Two of the following facts about sodium thiosulphate (photographer's hypo) are correct: It is used in developing film, it is used to manufacture artificial ice for skating purposes, it is used in the purification of water, it is one of the ingredients of cough syrup, it is used as a fire extinguisher.
7. If you threw a match into a container holding two gallons of carbon tetrachloride, and one gallon of gasoline, it would: explode, hurst into flame, solidify, throw out a cloud of smoke, extinguish the match.
8. The following are not scientists: William Beehe, Einstein, Roy Chapman Andrews, Frank Buck, Arthur Haas, George Washington Carver.
9. A decortivating tree is: a tree which remains green the year around, a tree which sheds its leaves in the fall, a tree which sheds its bark, a tree which bears needles rather than leaves, a tree which grows at high altitudes.
10. An osier wythe is: an incense burner, a willow twig, a hollow reed, a garment, a small boat.
11. One of the following is not a citrus fruit: Calamondin, Tangerine, Satsuma, Kumquat, Plantain.
12. The ice of the Arctic Ocean is of an average thickness of: thirty feet, frozen to the bottom, 76 inches, 100 feet, three feet.
13. The Red Sea is red because: it contains millions of tiny red fish, the water is impregnated with red mud, it contains microscopic plants called algae, the bottom is red clay, the water is derived from iron impregnated springs.
14. We live in the geologic period known as the: Myocene, Holocene, Silurian, Devonian, Carboniferous.
15. The number of species of insects are: 500, 10,000, from two to ten million, 750,000, half a million. (Answers on Page 127)

## THE EDITOR'S OBSERVATORY

(Continued from page 7)

the human brain continues to work, in part, the subconscious presenting in haphazard fashion the facts at its disposal in a more or less prankish manner while the more staid conscious mind is relaxing. Sometimes the subconscious does weird things with its material, and we have dreams that are far from logical. We even have nightmares.

But what about those dreams which do not answer this haphazard arrangement? Some people dream in a logical and orderly fashion, and are even able to take up later on where they left off in a previous dream. This would seem to point out that dreams are *not* the product entirely of an ungoverned subconscious mind.

Many people profess to obtain revelations in dreams, read the future, travel to distant lands, etc. Others read a meaning into their dreams, and try to apply it to their future behavior. Others consider them omens — of death, births, visitations, mishaps, legacies, etc. It is even held true by many that dreams are soul extensions, actually leaving the body, to perform the deeds of the dream.

Obviously, these are all superstition. Yet, dreams are important in mankind's life. Some people do not dream, or say they do not, but this is probably because they remember nothing of the dream, their conscious mind having the ability of complete detachment from the subconscious during sleep. All through history, we have dreams playing an important part in the moulding of history. The dreams of Jacob, of Solomon, of Daniel, of the Wise Men, of St. Paul, and others, made and changed history.

That weighty problems, unsolved by intense concentration of the conscious mind, are suddenly resolved during a dream, is unquestioned. The most obvious conclusion is that the brain, by that mysterious process called thinking, has carried on the process even after the body has relaxed in sleep, and has arrived at the answer.

However, whatever the reason for dreams, and whatever they are, there do exist many fortunate people who are able to dream in a logical and interesting manner, gaining in this way a dual

life which adds much to their enjoyment and their keenness in living.

\* \* \*

WE learn that the idea back of our rocket train of the January issue is by no means original. A Cleveland inventor has a working model of such a train, and its only difference is that its motive power is entirely in the magnetic rings, each one in its turn first pulling the ship toward it, then repelling it away as it passes through, continually acting upon the ship in either a pull or a push effect.

Nor is the basic idea of Stanton A. Coblentz' story original, since there have been working models of such a vacuum device on a small scale (intended for message transportation rather than vehicular travel) presented to the department of patents in Washington, and several have even been patented. However, these do not approach the possibility of a controlled train, although the principle is there.

\* \* \*

It has been estimated that steam can be produced at a depth of 12,720 feet in the earth. The temperature of the earth increases at the rate of 1 degree Fahrenheit for each sixty feet. It makes us realize the great depth of such geysers as Old Faithful. The source of them must be more than two miles below the surface.

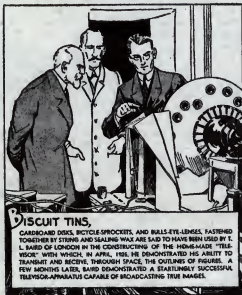
\* \* \*

It won't be long now before the new 200 inch telescope will be completed, and astronomers

will take their first look at the heavens. The subject of first observation has been much debated, but it is generally understood that the giant "eye" will first be directed on the outer edges of the universe. The real nature of the cosmos is the question physicists and astronomers want to know, and such observation is the only method of determining exactly whether such theorists as Einstein are on the right track. Personally, your editor would think of Mars and the moon as the first subjects of observation, since the question of life on other planets is of prime interest to those who read science fiction.

\* \* \*

Which about winds up the editorial ramblings for this month. However, we look forward with anticipation to the coming month because it marks the beginning of AMAZING's fourteenth year of publication and a topnotch issue. See you then.



### DISCUIT TINS,

CARDBOARD DISKS, BICYCLE SPROCKETS, AND BULL-EYE LENSES, FASTENED TOGETHER BY STRINGS AND SEALING WAX ARE SAID TO HAVE BEEN USED BY I. L. BAIRD OF LONDON IN THE CONSTRUCTING OF THE HOME-MADE "TELESCOPE" WITH WHICH, IN APRIL, 1932, HE DEMONSTRATED HIS ABILITY TO TRANSMIT AND RECEIVE, THROUGH SPACE, THE OUTLINE OF FIGURES. A FEW MONTHS LATER, BAIRD DEMONSTRATED A STARTLINGLY SUCCESSFUL TELEVISION-APPARATUS CAPABLE OF BROADCASTING TRUE IMAGES.

# QUESTIONS and ANSWERS

This department will be conducted each month as a source of information for readers. Address your letter to Question & Answer Department. AMAZING STORIES, 608 S. Dearborn St., Chicago, Ill.

**Q.** *How hot is the flame of an acetylene torch?*  
—H. Danner, San Francisco, Calif.

A. Although the temperature has not been definitely established, the oxy-acetylene cutting and welding torch is capable of producing a temperature of about 6000 degrees Fahrenheit, and is only exceeded by scientific means by the electric arc, which is the hottest flame man can produce.

\* \* \*

**Q.** *I have heard it said that the continents are afloat, and that they are moving continually. Is this true?*—Jackson Suhr, Tucson, Arizona.

A. In 1912 Professor Alfred Wegener of Austria published a book on this hypothesis. It was his theory that the continents are drifting, but definite proof has not been made. However, certain tests, involving radio, are being carried out, and definite results may soon be made known.

\* \* \*

**Q.** *What makes all the colors seen on oil?*—Richard Williams, Green Bay, Wisconsin.

A. The iridescence, which is noted on oil in a very thin film, is similar to that observed on soap bubbles, and is caused by mutual reaction of light rays on one another. The thin film acts in a prismatic manner, breaking up the rays of light into their basic wavelengths. The variations are produced by the conflict of these broken rays.

\* \* \*

**Q.** *Are the red corpuscles of blood really red? I have heard to the contrary.*—Edwin Bienski, Indianapolis, Indiana.

A. Although blood is a brilliant red in color, as it flows from a wound, this color is due largely to the presence of oxygen in the blood. However, the individual corpuscles, seen under a microscope, reveal their true color as a light straw color. It is only when great numbers appear together that the intensity of the color is deepened to red.

\* \* \*

**Q.** *Why does sudden bright sunshine affect the eyes so that bright specks are seen floating around, apparently in the air about one's?*—Ed Benkowski, Milwaukee, Wisconsin.

A. These floating specks of brilliance are caused by the shock given the optic nerve when the eyes are exposed to bright sunshine or any other glaring light. They are similar to the "stars" seen when a blow on the head is received, and are a result of the same cause, nerve shock.

\* \* \*

**Q.** *Can diamonds be destroyed by fire?*—Arnold Hall, Los Angeles, Calif.

A. No. Diamonds will not burn in ordinary air. However, if they are placed in pure oxygen, they will burn at 850 degrees centigrade, following the natural inclination of carbon as in coal.

**Q.** *What is meant by the term "deliquescence"?*—Arthur Wilmot, Mercer, Wisconsin.

A. This word refers to the melting of salt, or its power to absorb water until it goes into solution. In damp weather, salt absorbs water from the air. Some types of salt have greater absorbing power than other, but all salts absorb water and have the tendency to deliquescence.

\* \* \*

**Q.** *Could you give me a suitable explanation of what part cosmic rays play in our universal makeup, how they are detected, and what is their frequency?*—Eugene Stoops, San Marcos, Texas.

A. Cosmic rays are thought to be the radiations emanating from outer space, where matter is being created out of radiation. Their effect on earth is to ionize the air and other gases. They are continually converting nitrogen into hydrogen. It has also been suggested that mutations, or biological transformations in plants and animals occur in nature due to the action of cosmic rays on living tissue. Cosmic rays range in intensity from 100 million to 2.7 billion volts, and Millikan holds that in outer space elements heavier than uranium, number 92, are being created by cosmic rays. They are detected by electroscopes and have been directionally detected by the hodoscope, a device using neon lamps which flashed, according to the direction of impact. They are of a very hard and short frequency, even above x-rays. They are super-gamma rays.

\* \* \*

**Q.** *We read in countless stories of the guinea pig, how about telling us just what this little animal is, and where he comes from?*—George Miller, Kansas City, Mo.

A. The guinea pig was found by the Spaniards, when they first invaded the Andean regions of South America. It was a domesticated animal used for food by the Indians and lived in large numbers in the houses of the Indians. In the sixteenth century, Dutch traders brought the animal to Europe, and it was kept chiefly as a pet, regarded as an animal of little utility. However, it became adaptable to scientific use, for dissection, and for experimental work with serums, cancer, etc., and has proved of great use to medical science. It is readily suggested by its name, but the origin of guinea is unknown, unless it is a corruption of Guiana.

\* \* \*

**Q.** *Is there any metal which will absorb a liquid?*—J. F. Johnston, St. Louis, Mo.

A. Yes. General Motors Corporation has perfected a form of bronze in its laboratories which is reputed to possess the ability to absorb one-fourth its own mass of oil. It is extremely porous.

# Meet the Authors

FREDERIC ARNOLD KUMMER, JR. Author of  
VENGEANCE FROM THE VOID

**B**ORN March 27, 1913, at Catonsville, Maryland. Now a resident of Baltimore. Unmarried. Six feet tall, 190 pounds, grey eyes and brown hair. Hobbies . . . dogs, chess, table tennis bridge, fishing, horses. So much for that.

As for how I got into this writing game . . .

well my father is one of America's better-known authors. I was brought up in an atmosphere of twist plots, second-act climaxes, clinch fade-outs, and furious typewriting. Strangely enough, this first hand knowledge of the ups and downs of the literary profession instilled within me a desire for security . . . a longing to sit behind a nice solid desk and dictate letters, confident of a weekly stipend forever and aye. As a result, upon graduation from high school I took a position in the cashier's office for a life insurance company, about the most secure job possible to obtain.

Well, after four years behind that nice solid desk I'd dreamed of, the monotony began to get me. Moreover,

there was a venerable gentleman in our office who had been with the company for fifty years, and when one day I discovered his weekly wage to be twenty-five dollars I decided I'd better quit while I had the chance. Next morning big business and I parted company, to the intense relief of both parties. I had come to the point where I saw columns of figures in my sleep and the insurance company had begun to view my independent, cantankerous spirit with positive alarm. With mutually hollow wishes of success my employers and I went our respective ways.

When the first few weeks of glorious laziness had passed I decided I might as well try my hand at a story until something better came along. That first yarn, I blush to confess, won a True Story prize contest and I received a price of ten cents a word for it. I was hooked. Since then I have been a confirmed author.

After three years of writing confessions, love stories, humor, radio material, detective, adven-

ture, juveniles, or what have you, I tried my hand at science-fiction, of which I had long been a reader. Success attended my first efforts in this most interesting of all fields and I hope to continue in it as long as I am able to turn out salable yarns. I still do historical, detective, and newspaper syndicate work as well, but don't get the kick out of them that I do from science-fiction.

Concerning my methods of work, I am the slow patient type of writer. I look with envy and awe at my friendly rivals who tell me how they "dashed off a novelet this morning" or "batted out a serial over the weekend." A five or six thousand word story is a week's work for me. One day to block out the plot, three days to write it in longhand, a day and a half to type and correct it. On the other hand, I believe my rejection ratio is lower than those of my more speedy friends.

I am extremely fortunate in having had a literary father to guide me in my early attempts. Since then, however, our styles have become as opposite as the poles, his emphasizing modern economy of words and

my own tending always toward color and more color . . . a hangover, no doubt, from several years study of portrait painting. In spite of this difference in style, however, we often discuss plots and ideas to mutual advantage. I also wish to doff a metaphorical hat to my younger brother, Joe, who, as a scientist, helps me with knotty scientific problems.

It is my belief that science-fiction is the really big field of the future. We have only to look at the new magazines popping up every day for proof of this fact. The western and detective types, after their long reigns, are beginning to wear a trifle thin, and with science taking an increasingly important part in its daily life, the public is beginning to look to the future instead of the past. So many marvels of science have occurred in recent years that the skepticism of the doubting Thomases is being shaken. More and more they are realizing that few things are really impossible, that our predictions for the



Udel Bros.

Frederic Arnold Kummer, Jr.

years to come are not fantastic dreams hut the everyday commonplaces of the future. With the world looking forward, science-fiction should in time become one of our leading literary fields. And perhaps, while we're gazing into the future we may see AMAZING STORIES in his slick format, rivaling the august Satevepost itself! Here's hoping!

About "Vengeance from the Void" we have read of men, their space-ships ripped or blasted open, dying of instant strangulation in the void. That men in such conditions would die goes without saying . . . hut that they would be eternally dead is not so certain. The lungs of a man thrown into space would be filled with air, expanding air, which, following the line of least resistance, would escape from his mouth and nose. His body then might conceivably remain intact. Furthermore, the temperature of space, hut slightly above absolute zero, would surely preserve that body. Bacteria causing cell decay and death would be killed by the cold and the body maintained in the same state as at the moment of death. Already we read of dogs killed, frozen, and brought back to life. Given as perfect a vacuum and refrigerator as space, death might be only a transient state, if all bodily organs remained sound.

That is the basis of "Vengeance from the Void." A body found in the void, brought back to life. And returning, he seeks only vengeance on the man who killed him. In this story I have also advanced my own pet theory on how Mars lost its water supply and how the earthmen might go about restoring it. The man from the void knew a thing or two about water also, and used this knowledge as a means of vengeance. I rather fancy this yarn and hope you will, too.

Let me take this opportunity to thank you for both hrickhats and bouquets concerning recent stories of mine in AMAZING STORIES. The bouquets will huck me up when the stories aren't going so well and the hrickhats will make me huckle down to do better work. So thanks a lot, and I hope I'll be seeing you in the Meet The Author column soon again.—*Frederic Arnold Kummer, Jr., Baltimore, Md.*

\* \* \* \* \*

#### MILES J. BREUER Author of THE RAID FROM MARS

Dr. Breuer lives in the plains city of Lincoln, Nebraska, which is said to possess the most artistic and impressive Capitol building in the world. He spends most of his time as a practicing physician in a speciality (Diagnosis and Internal Medicine) which requires the use of a laboratory.

In this laboratory almost every known science is utilized, chemistry, physics, electricity, biology, optics, photography and etc. In addition Dr. Breuer is pathologist to one of the hospitals in the city of Lincoln, and has charge of the hospital laboratory. In his daily work he uses almost as much science and complicated apparatus as do the characters in the stories he writes.

Dr. Breuer was born in Chicago and has lived in almost every state in the union except the

Southeast. He saw service as a medical officer in the World War, not in taking care of wounds hut in fighting epidemics, such as meningitis, diphtheria, and typhoid fever. His vocation keeps him very busy and he does not have time to turn out the volume of material which is produced by some of the other writers for AMAZING STORIES. In addition to his hobby of writing, he also enjoys amateur photography and has exhibited prints in the prominent clubs of the country. He also frequently undertakes problems in bio-chemical research, and has published a large amount of research material in scientific publications.—*Miles J. Breuer, M. D., Lincoln, Nebr.*

\* \* \* \* \*

#### EDMOND HAMILTON Author of VALLEY OF INVISIBLE MEN

LOST cities and hidden peoples, fabled kingdoms and mysterious, legend-haunted ruins—I can't imagine anyone not interested in them. Certainly, anything of the sort has always interested me, and for years I've read everything I could get hold of on the subject. And one of the greatest mysteries of them all lies down in the vast, unknown jungles of the Matto Grosso, in interior Brazil. I've read most of the literature on the subject, and I don't know of any more fascinating story.

In 1753, some Portuguese gold-hunters penetrated far into the unknown Matto Grosso. They came upon gigantic ruins of a shattered city, and a few days later, they glimpsed in the distance some white-skinned men, dressed much like Europeans, who quickly evaded them. The worm-eaten manuscript that tells of this is still kept in the National Library at Buenos Aires.

Colonel H. P. Fawcett, South American explorer, believed in the hidden race. He led an elaborate expedition into the Matto Grosso in 1925, to search for it. And Fawcett was never seen again. One relief expedition after another has gone in and searched for him, without finding him.

Who are these white people, if they exist? It has been speculated that they might be remnants of the people of perished Atlantis, who fled westward to the high Matto Grosso plateau when their own land subsided. Ruined cities down in that region have inscriptions in characters almost exactly similar to the ancient Greek.

Another speculation has been that the hidden people are descendants of the subjects of the old Incas, fugitives from the Spanish conquest of Peru who marched westward into the wilderness for safety.

Reading on this subject, it occurred to me that both speculations might be right. Both the survivors of the old Atlanteans and the descendants of the fugitive Incas might exist down in that mystery land, a handful of white people fighting off an outnumbering brown race. And suppose, to protect themselves, the less numerous white people took refuge in—invisibility?

For the Indians of Brazil have legends of men who cannot be seen, and who dwell far within

the jungle. No white man can get a clear notion of their beliefs, for to them the subject is *curupuri*—taboo, forbidden. Do these beliefs connect somehow with the persistent legend of the hidden race? If so, there's a bigger mystery in those jungles than even Fawcett imagined.—*Edmond Hamilton, New Castle, Pa.*

\* \* \* \* \*

ISAAC ASIMOV Author of

#### MAROONED OFF VESTA

**B**y the time these words see print, I shall be an aged patriarch rapidly approaching the venerable age of nineteen. Of these nineteen the last ten have been spent mainly in, on and about science fiction.

As a matter of fact, my father introduced me to my first copy of *AMAZING* some time in 1929 and the first story I read was "Barton's Island." Since then, I have been a steady reader, my favorite story of all time being "Drums of Tapajos."

I am of medium height, dark, and my mother thinks I'm handsome. The general consensus of opinion does not commit itself quite so far, but I do not complain. I am now serving the last year of my sentence at Columbia University and will graduate next June with flying colors.

My favorite pastime is reading; my favorite sciences, mathematics and astronomy (though I major in chemistry at Columbia and am taking a pre-medical course). Also, I like cats. As far as I know, I have no vices—or, at least, no serious vices. And, oh yes, I like to write.

My first attempt at writing came at twelve but the monstrosity that resulted has been burned long ago. Science fiction did not come until I had acquired my first typewriter four years ago, but it was not until the middle of 1938 that I took my life in my hands and bearded the mighty Editor in his den. The Providence that watches over the rash beamed kindly down upon me and "Marooned Off Vesta" is the result.

It may be unusual but I don't know exactly how I got the idea for the story; like Topsy, it just grewed.

There are more stories on the way, some in a state of partial completion now, and I hope and hope again, that this first story does not prove to be a flash in the pan. If it does, it won't be because I didn't try.

Anyway, I hope you like the story. After all, it is the readers that are the powers behind the throne and they must be pleased.

Au revoir until we meet again; and I sincerely hope we will.—*Isaac Asimov, Brooklyn, N. Y.*

\* \* \* \* \*

ROBERT BLOCH Author of

#### STRANGE FLIGHT OF RICHARD CLAYTON

**T**HOSE reading my SECRET OF THE OB-

SERVATORY in an earlier issue will be interested in knowing that I am still the same lovable little fellow—a subtle blending of Wallace Beery and Shirley Temple; with possibly a slight dash of the Marquis de Sade. Several readers have been kind enough to ask how I write. (I'll ignore the dozens who asked "why?"). The an-

swer is simple and has nothing to do with opium. In order to achieve generic significance I just create an environment for myself which fits the story background. Allow me to illustrate that statement.

If I write a weird tale I sit in a coffin. If I write a western I do it on horseback. (Wait until I get around to love stories!) In writing this science-fiction yarn I wore a space-suit—so called because the pants were several sizes too large for me. As I told one reader, I like to plunge right into the *locale* of my story. He suggested I write one about an open manhole.

Instead I wrote *THE STRANGE FLIGHT OF RICHARD CLAYTON*, which embodies a concept long fascinating to me. Since so many stories concern the *physical* difficulties of space-voyages, why not a yarn about the *mental* hazards? Should inter-spatial travel evolve, I am certain that the psychological problems will be infinitely more complex than mechanical obstructions.

In order to prove this, members of the Fictioneers including authors Arthur Tofte, Ralph Milne Farley, Leo Schmidt, and myself are building a little space-ship of our own for a trial flight. Between work-periods these Fictioneers have as usual aided me in suggestions for the story, and I wish to extend my thanks. Perhaps I'll mail my next story in from the moon.

(ED. NOTE: Perhaps you won't!)

(AUTH. NOTE: Don't mind the editor, folks. I happen to know he's a robot!)—*Robert Bloch, Milwaukee, Wis.*

\* \* \* \* \*

ED EARL REPP Author of

#### THE CITY THAT WALKED

**O**F all the readers of the pulp paper magazines, I sincerely believe science fiction fans are indeed the most loyal and appreciative of a writer's efforts. I can scarcely begin to show my appreciation for the kind reception the readers extended to me on my return to science fiction with "The Gland Superman." It is indeed encouraging to a writer to have so many loyal friends and let me say that without encouragement a writer is whipped before he gets into stride.

I had expected to find an entirely new crop of science fiction fans to greet "The Gland Superman" and "Song of Death," but it was with pleasant surprise to find so many of the fans like Richard Irwin Meyer, Louis Kuslan, Isaac Asimov and many others who remembered my stuff from the early days, and it is fine indeed to find them still loyal to *AMAZING*, the oldest science fiction sheet in existence. A loyal bunch . . . as they say out here in the west . . . "gents to ride the river with."

It is my honest opinion that science fiction readers are among the most intelligent people in the world. Many of them will someday be scientists and the old saw about judging a man by what he reads is pretty well borne out in a number of instances on record.

There is little I can say about "The City That

Walked" except that it had its inception during a trip I made to Death Valley this summer, where a good many of my science fiction efforts were inspired, particularly "The Radium Pool" which will be remembered by many.—*Ed Earl Repp, Van Nuys, California.*

\* \* \* \* \*

EANDO BINDER

Author of

## TRAPPED BY TELEVISION

THIS story was built from the roof down. It happened to strike me one day that it would be a fine thing if criminals' thoughts could be exposed in the courtroom. It would mean conviction where it so often now means acquittal. In fact, it would mean a general cleaning up of legal machinery, and the death-knell of organized crime.

At this point I had to stem the onrush of my wishful-thinking—this must be a science-fiction story, not a detective thriller. I had a premise—that a new lie-detector which exposed *thoughts* had been invented. Who had invented it and how? That would lead me to the science of the story. Dale Randall knocked on the door of my

mind and walked in—a young biologist with a new idea about our mental processes. In brief, that a certain amino-acid supplied supersensitive ions responsive to the delicate waves involved in thinking.

All well and good, but I found the irrepressible Danny Hogan, already introduced as a character, crowding forward constantly, hogging the lime-light. I couldn't keep him out of it. Before I knew it, he had enraged the scientist, fallen in love with the girl, and was about to tell me how to finish the story. But at this point, I became firm, and decided to make him work for his part, and put him up against a situation he'd have trouble solving. Then, maliciously, I let the girl—*cherchez la femme!*—beat him to it. As a final blow—but read the story.

To some degree, the story molded itself in the above manner, with the author in doubt to the very end how it would end. The characters really ran away with me and made things come out as they wanted. Insubordination, I call it!—*Eando Binder, New York, N. Y.*

## ANSWERS TO SCIENCE QUIZ

(Quiz on Page 121)

## SCIENCE TEST

1. An altimeter.
2. Skunk. The Biological Survey says skunks eat yellow jackets and humble bees, having a peculiar liking for the juicy larvae, but also not averse to eating the adult insects.
3. No constellation at all. The stars visible from earth are divided into constellations for convenience in studying them, and the sun is not included.
4. Five.
5. Ecliptic. The others are the four basic odors of the chemist's definition of odors.
6. It is used in developing film, it is used to manufacture artificial ice for skating purposes.
7. Extinguish the match. This combination is non-inflammable.
8. Frank Buck is not a scientist.
9. A tree which sheds its bark.
10. A willow twig.
11. Plantain. This is a species of banana.
12. 76 inches. This is the average of observations by fifteen different stations over a period of eighteen years.
13. It contains microscopic plants called algae.
14. Holocene. From approximately 20,000 B. C. to the present.
15. From two to ten million. Over one-half million are classified.

## TRUE OR FALSE

1. True.
2. True. In February, 1843, and September,

1882, there were comets brilliant enough to be seen in the daytime.

3. True.
4. False. It is the distance from Earth to sun, 93,000,000 miles.
5. True.
6. True.
7. False. They are birds having completely webbed toes, such as the pelican.
8. True.
9. True. All others are a modification of these.
10. False. The touch sense is faster.
11. True.
12. False. This ability of added movement is caused by loose ligaments around the joints.
13. True.
14. True. It runs from the upper part of the hip to the inner aspect of the knee.
15. True.

## STRIKE OUT THE WORD THAT DOES NOT CONFORM

1. Parallax.
2. Gasoline.
3. Frost.
4. Calcium.
5. Thesaurus.

## SCRAMBLED SCIENCE TERMS

1. WEASEL.
2. ZODIAC.
3. POLARIS.
4. DYNAMITE.
5. ARSENIC.



# DISCUSSIONS

★ **AMAZING STORIES** will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. Bouquets and brick-bats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department. Get your letters in before the 15th of each month.

## AN ARTIST-READER

Sirs:

In **AMAZING STORIES** for December, 1938, Jack Chapman Miske voiced his disapproval of the cut heading the editorial page (I see you have changed it since, for the better)—and I agree with him. It wasn't much in keeping with the excellent illustrations for the stories and the cover. But the contents page is still blest (?) with the old cut. Leslie Crutch contends that it stinks, and I might add, it isn't very dignified.

I asked myself why the letter style of **AMAZING** must be the same as the cover, and I can see no excuse for it being so. Good in colors, but black and white, no, no.

So I sat down and doped out the accompanying sketch, trying to embody three qualities, namely—dignity, some allusion to the stories, and a more modern layout. I think I have achieved all these. (Ed. note: we reproduce here Mr. Rowberger's sketch.)



The three lines—January 1939, Volume 13, Number 1—could be set in type. I merely sketched them for approximate size and style.

I've finished February **AMAZING STORIES** and it is out in front of all other S.F. magazines. "Wanted: 7 Fearless Engineers" could have been a book. Here was a story whose great fault lay in its brevity. "The Phantom Enemy," very well written, and highly possible reactions of the people concerned. All the other stories were above 80%. Keep it up!

DON'T let Krupa and Fuqua go! They are excellent. Their technique (especially Krupa's) is excellent and different. To criticisms—Krupa's cblms—a little too square. And his colored drawings for the back spoil the good work of his interior illustrations. Keep him on the line draw-

ings. Turn McCauley loose on the backs of covers. Scenes are more distinctive than colored diagrams.

All in all, **AMAZING** is stepping out into first place. Keep it there!

*Paul Rowberger,  
% Miss Helen Shekey,  
2118 Sansom St.,  
Philadelphia, Pa.*

● We present your sketch to the readers to get a more definite reaction on this contents page discussion. Your lettering is very good, and your conception of a future city is interesting. (Watch for our forthcoming back cover feature already prepared for a future issue.) However, this cut would run a bit deep on the contents page, and would not allow us sufficient room for titles. Also, the subject matter is a bit loose, and not detailed enough. Nor is the word "contents" very legible. However, it is worthy of reproduction to get the readers opinion on whether the contents page should be changed or not. Many thanks for your interest in our progress. Perhaps others of our readers have ideas on the type of cut they would like to see.—Ed.

## UNSURPASSABLE!

Sirs:

The last issue was certainly unsurpassable! Everything was up to its usual standard, including all the various departments, illustrations, and stories.

I believe that "Wanted: 7 Fearless Engineers" is by far the best story written since—well, just since! It is a model, to my mind, which you should set up as a standard. Plot, setting, et al were excellent and refreshing.

That's what I like about **AMAZING**; not only do I get literary satisfaction, but also scientific facts interestingly presented. It is rather unusual for a so-called pulp format to be so educational and intriguing, don't you think?

*Byron G. Ingalls, Jr.,  
30 Main Street,  
Fozboro, Mass.*

## LIKES THE COVER

Sirs:

The February issue of **AMAZING STORIES** was the best yet. I've been reading Science-Fiction for four years, and have not seen a better Interplanetary painting on any cover. Mr. Editor when can we expect a Professor Jameson story? The best

story in the February issue was "Valley of Lost Souls" by Eando Binder, running a close second was the story by Ed Earl Repp "Lost On The Sea Bottom." Other great stories were: "Wanted: 7 Fearless Engineers," "The Light That Kills," "The World That Dissolved" and "Mr. Craddock's Amazing Experiment." After reading a few lines of "The Phantom Enemy" by Morris J. Steele I was beginning to wonder if you had taken Mr. Ross too seriously about having stories other than Science-Fiction in AMAZING STORIES, but it improved toward the end and was fairly good. In closing I wish to offer my good luck for the future of AMAZING STORIES.

Blaine R. Dunmire,  
414 Washington Ave.,  
Charlertoi, Penn.

● Mr. Fuqua is constantly improving, and we feel certain that you'll revise your opinion on the February cover being the best you've seen. And you'll do that with both the March and April covers, which your editor deem to be masterpieces of imagination and art work.—Ed.

**WE AGREE**

Sirs:

I just finished reading the February AS. Taken as a whole, I believe it is the best issue since the ZIFF-DAVIS took over, and that is saying quite a bit. For once, I can't honestly say that I think any story poor, or that any of the stories are of a type which doesn't belong in a science-fiction magazine.

"Wanted, 7 Fearless Engineers," is the top story of the number. If the style is not quite as good as in some of the others, the content more than makes up for that.

"The World That Dissolved" is excellent—one of the best of its type that I have seen. I suppose the likelihood of focusing the destructive radiations from the nova by means of any kind of a telescope is very small, but that was pretty well taken care of by assuming a type of telescope not yet known. It *might* work that way.

I place "Valley of Lost Souls" third. It seems a definite departure from the general run of Atlantean stories, although the suspended animation qualities of the blue mist is by no means a new idea. I liked the root-word idea of communication, although I think an expert in ancient languages would be necessary to take advantage of it. Language changes have been pretty drastic, even in historic times.

Would liquid air sink to the bottom of the ocean? Personally, I think not—the specific gravity of liquid oxygen at its critical pressure is only about 0.7, while that of sea water is, of course, slightly over 1.0. Also, it appears that, even with the cooling effect of the water, and regardless of the possible pressure-combating effect of the centrifugal force, the friction due to the whirling vessel would develop a great deal of heat, would it not? And the pressure of the air in the



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submarine cavern would, of course, be equal to the water pressure outside—rather tough on human beings. Anyway, I still think "Lost on the Sea Bottom" a pretty good story. A little more care with facts, though, please.

"The Phantom Enemy" is very good—it seems to me that, if space travel ever eventualizes, the events here depicted might well take place in much the same manner as pictured. I don't rate the story higher because I don't like the emphasis on the horror element.

"The Light That Kills" is, possibly, the most likely story to occur in real life of any. Probably an airplane would be used to carry the drug.

"Mr. Craddock's Amazing Experiment" is well named. It reminds me of Bob Olsen's 4th dimensional stories, with a refreshing twist that is Temple's own.

Aren't there rather more than 300 of your readers who would be glad to see The New Adam, though? A competing magazine, by means of a questionnaire, discovered that a high percentage of their readers are professional men and other well-educated and well-read persons. I think your magazine, the oldest science-fiction magazine of all, lists most of these people among its readers.

If Paul does some work for you, keep him on machines, prehistoric animals, etc.

I seldom mention covers, but this one is worth mention. It certainly couldn't appear on anything but a science fiction magazine. The caterpillar might better have been given jaws like an insect, rather than like a vertebrate. But it is a good cover.

D. B. Thompson,  
Lincoln, Neb.

● Warner Van Lorne certainly seems to have rung the bell with his engineer story. Your letter is almost a reproduction of practically every letter commenting on the stories themselves.

Last month we neglected to list the ratings on the December issue. They follow: 1. Ghost of Mars. 2. Master of Telepathy. 3. Purge of the Deaf. 4. Patrolman E6 Gets His Man. 5. Kiss of Death. 6. Prince Deru Returns. 7. Polar Prison.

The January issue rates thusly:  
1. Battle in the Dawn. 2. I, Robot. 3. Black Empress. 4. Death in the Tubeway. 5. The Scientific Ghost. 6. Interplanetary Graveyard. 7. The Treasure on Asteroid X. The feature, A message To The Future was prominent in the voting as a popular feature, and the back cover received much commendation.—Ed.

## IN SUPPORT OF THE OBSERVATORY

Sirs:  
Upon my reading "The Editor's Observatory" which, by the way, I find to be the most interesting part of the entire magazine—I was startled by reading there an idea that I had been thinking of for at least two years or more. The idea is the theory that the earth was at one time surrounded by rings and then canopies of material that had been vaporized during the molten state of the earth. My idea grew out of the fact that I believe in the truth of the Bible and yet hold to things scientific. I felt the need for reconcilia-

tion between the two. And thus the idea. Therefore, I was greatly surprised to find—as you say—that “some scientists hold to the theory that in the final stages of its creation, Earth was surrounded by a hubble of water which hadn't broken and descended to the surface.

Besides the rainbow, dew, lack of rainfall, and other points you mentioned, there is this one: the discovery of mammoths in the arctic regions frozen solid in ice and in their stomachs the undigested portions of grasses. How could a huge animal be caught so suddenly? It could happen only by an avalanche of snow or ice falling upon him from some cliff; or, conversely, the animal falling into some deep ice-filled gorge. However, could snow and ice of such quantity have existed at the same time an herbivorous animal of such huge size lived? Profuse vegetation to support a mammoth would not be possible in an ice field. Where did the snow come from?

When the Earth was molten, water vapor was thrown off and formed a ring in the plane of rotation. Before the flood this ring had slipped down toward the poles, forming a canopy which produced a condition on Earth somewhat like that on Venus. The flood was the water that fell at the poles as ice—thus burying the mammoth—as well as the melted portion that fell as rain.

If I may comment on the magazine, I would say this: it's re-birth is phenomenal, yet—the “juice” added to the stories is of pretty low potential; the motivations of action are generally in the animal side of human nature, or if not that, childish; revenge, murder, lust for power, search for riches . . . can't we have some search-for-scientific-truth-with-amazing-natural-consequence stories? “I, Robot,” by Binder, though clearly patterned after *Frankenstein*, was the best of last issue. However, I wonder if Binder read the book, or saw the movie; for the premise that a created man must turn against humanity was not made in the book as Binder says. All my sympathy lay with the monster who was kind, gentle, and loving until cruel man embittered him.

Donn Brasler,  
3031 N. 36th Street,  
Milwaukee, Wis.

● The editors are glad to see that the Observatory is so well liked. We try to talk about interesting things in this department, and we try to talk about things which will make our readers think. Often all of us have theories to put forward that need such expression, and your editors are not backward in doing the same. Your support of our latest hit of theorizing is very welcome, and your points are very well put.

As for the “juice” of our stories, you'll no doubt be interested in the Observatory this month, which gives your editor's thoughts on just that subject, and we hope our authors read both the Observatory and your letter. However, we don't think you've gone far enough with your demands. The human element is all important to a story, as you'll agree upon reading “Wanted: 7 Fearless Engineers.”—Ed.



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## WHAT ABOUT THIS, MR. REPP?

Sirs:

The Fitzgerald formula states that  $M = m / \sqrt{1 - k}$  where  $M$  is the mass of a moving body,  $m$  its rest mass, and  $k$  is the square of the ratio of its velocity to the speed of light. Thus, when the velocity equals the speed of light  $k$  equals one and  $M = m / 0$  which is infinity.

But a photon has a small finite mass and its velocity is of course the speed of light so  $k = 1$ . Then  $M = m / 0$ . But the only number, which divided by zero gives anything except infinity is zero. Thus, the rest mass of a photon is zero.

Now Mr. Repp has his frozen light in a state of infinite entropy. But a state of infinite entropy would have a velocity of zero and the photon would have nothing except its rest mass of zero left.

James D. Tillman, Jr.,  
Madison College,  
Madison College, Tennessee.

● All your editors can say to your equation is that we don't hold much by either Fitzgerald or Einstein. If a light photon has mass, and moves at speed of light, its mass is infinite, and woe betide anything in the way of an infinite mass, if one could even be imagined to exist. I'm afraid when you take Fitzgerald's equation as a literal truth, you are swallowing something many imaginations can't even chew. So far as we know, Mr. Repp has perfect right to disagree with Fitzgerald. Maybe he has something to say about it? If you have, Ed, let's see a letter on it. —Ed.

## SOME QUESTIONS

Sirs:

In your January issue, how could the bear in the problem run west at the North Pole, where all directions are south?

How many magazines to a volume of AMAZING STORIES?

Also, how are the people in the year 6939 going to know about the Time Capsule buried at the World's Fair Grounds?

John G. Todd,  
Chelsea-on-Hudson,  
New York, N. Y.

● If the hunter was at the North Pole (assuming it to be a definite spot beneath his feet) then the bear was south of the pole, and *could* run west, since it is only *at* the pole that all directions are south.

AMAZING STORIES has always held to the policy of calling each year of publication a volume. Thus, there are 12 issues to a volume at present, since the magazine is monthly. We have been publishing AMAZING since April, 1926, and 1939 will mark the 13th volume, or 13 years of publication, a record not held by any other science fiction magazine.

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edge of its location down through the years.—Ed.

### A BACK COVER CRITIC

Sirs:

I just procured and read my copy of the January issue and I am glad to see that AMAZING is now improving. While the first few issues were hard to tell from Horror Tales or similar magazines and while the vast majority of the stories in them were neither science-fiction nor well written the last two or three issues began to contain stories worth while reading. Improvement started with Weinbaum's "Revolution," the outstanding story in the December issue was Pragnell's "Ghost of Mars." In the January issue the first place goes undoubtedly to Manly Wade Wellman's "Battle in the Dawn," an outstanding piece of fine writing. Next is Eando Binder's robot story, the others are more or less readable.

As to your back covers, I mainly wonder why it should be impossible to get advertisements for them. Not that I like advertisements but no matter how they might look and what they might try to sell they would be better than what occupies their space now. The "information" conveyed by these back covers is, to say the least, misleading. The cover that undertook to picture the "face from fish to man" was apparently based on scientific literature as old as the biblical age of man.

Followed the cover with the airliner of 1980—well, you received a letter from somebody else about it. All the mistakes and weak points of this "design" showed up again—magnified ten thousand times—in that so-called "Rocket Ship." I hope that you will take my word for it that it was nonsense of high purity. At least I want the readers (if not the editor himself) to believe me when I say that every single factor in this "design" was wrong, distorted or misunderstood. I am grateful to Dr. Clark that he pointed out the most painful mistakes. His letter which you printed in the January issue saves me a lot of work. I only have to add that I fully agree with him. I have never seen anything that was so childishly conceived as this drawing.

This month now we get a "rocket train" by another artist than the one who "did" the rocket ship but not any better as far as the scientific side of the thing is concerned.

Please ask him to *think* for a few moments and then to say why one should even consider rocket propulsion for travel in the dense surface layers of the atmosphere. The most rudimentary sort of efficiency calculation will show that it just cannot be done. The reference to Valier's railcars is erroneous as you may be interested to learn. Of course, these cars were built, but Valier himself admitted to me, to Professor Oberth and to several others that they were only publicity stunts, as everything else he did. The tragic part was that Valier was killed in an accident just after he had started on scientific research.

But to return to the rocket train: did it occur to anyone that the magnetic rails that are pow-

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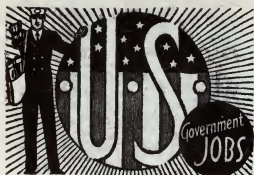
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erful enough to hold the weight of the car in suspension could be used to propel it too? Experiments like that have been performed in the laboratory so that there is no doubt that it can be done.

I am looking forward with plenty of misgivings to the future ocean liner announced for the next issue. If a miracle happens and proves my forebodings to be wrong I'll be glad. But I know that there are no miracles and therefore I renew my plea for advertisements on the back cover. Anything to get rid of these rocket ships and rocket trains.

Willy Ley,  
32-18—79th St.,  
Jackson Heights,  
Long Island, N. Y.

● AMAZING STORIES has attempted to show its artists' (and its editors') conception of what these future things *might* be like, but you must remember, neither one is a scientist, and certainly not a technical expert. There are no technical experts with facts on space ships, electric-magnetic railroads, etc. Our back covers are well liked, and although each one is criticized, the criticism is always constructive, and many new and very good points are brought out in the letters written to Discussions. That is our purpose, and we are achieving it admirably.

I know that you are an authority of rocketry, and perhaps you would be interested in giving our readers your conception (backed up by your experiments and those of your colleagues) of what space ships should be like, with illustrative material. Our readers would be intensely interested.

This month we present our concept of a future subsea vessel designed for the purpose of undersea salvage. We hope that it will be the beginning of many more constructive criticisms, because that is what is intended. Our covers naturally can't be the mechanically perfect things presented by magazines devoted to mechanics of the present (otherwise perhaps we could obtain patents on some of these gadgets) but at least, they are a step in the right direction.

In this effort to give the readers as close to future actuality as possible, it might be a good idea for those of our readers who have good ideas of future things, and facts to back them up, to tell us about them. We are perfectly willing to pay our regular rates for good material of this type, but it must be *original*, no adaptation, or copy from something already presented.—Ed.

**A GOOD POINT**

Sirs:

What I want to see is book-length novels that really are book-length novels! Hang on to that neophyte author of yours, Morris J. Steele. He has a style of his own. Get Charles R. Tanner back, too. His Prof. Stillwell is a science fiction character if ever I saw one! Pleased to hear we're to have more of the Jameson stories.

Do you know, I don't much care for your prac-

tice of publishing only those letters which comment on the issue immediately preceding. With that five-day deadline, you get mainly first impressions. And how about those of us who are slow readers, or are just plain lazy, or (present case) both? I, for one, like to stretch my AMAZING out into a month's reading. Why, here it is the 14th, and so far I've only read two yarns. (Binder's and Cohlent's—both good.) Do you see my point? One of your contemporaries very consistently allows a month's leeway and prints mainly comments on the issue of two months back. That, in my opinion, is the ideal policy, for surely two months back isn't ancient history?

When is that master-mind, Bloch-head going to pop up with another definition? His def. of space was superb, but the one for time was just silly. And while we're on the subject, how's this: "Matter is what if there wasn't any there'd be much more space without than with." That about sums up the situation, doesn't it?

Norman F. Stanley,  
43A Broad St.,  
Rockland, Maine.

● You will note that this month's Discussions carry letters from both the previous month, and the current month, since we have decided also that many good letters come in late, and they certainly should be included.—Ed.

SEX

Sirs:

My object in writing is to register a few kicks—not in the direction of the author or the magazine, but at those wordy gentlemen who eternally infest the pages of "Discussions" with their chatter. I think that the nine pages which constituted the correspondence department could have been much more profitably used by adding another story. Why do readers have to pay money to receive seven good stories along with twenty-five uninteresting letters? I can't answer that question but I think I can guess why these people do write to AMAZING STORIES, month after month. They like to see their names in print and to feel like small-scale Shakespeares by having their writings read by the public. They give the impression of writing only to offer helpful criticism, but they could do that without having their letters printed. I suspect the fact that their ulterior motive is to get their letter printed. So much for that class of science fiction readers.

There is a second type of person I would like to speak about. I refer to the prudes who declaim so energetically whenever there happens to be any reference to sex in an AMAZING story. If they knew the science they pretend to know, they would realize that love is a fundamental interest of the normal human being. The psychological processes of rationalization, regression, compensation, resistance, justification, and egocentricity all tend to make a person act in just such a manner as that of the sex prosecutors.

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In closing this address to the contributors to Discussions, I wish to offer a challenge to anyone who can prove my reasoning to be faulty.

I attach my name and address to this "highly opinionated" missive according to the suggestion of the Editor in January's Discussions.

King Keillor,  
10 Catherine Avenue,  
Waterbury, Connecticut.

### THE CHEMISTRY OF OUR AUTHORS

Sirs:

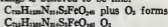
I feel the urge to indulge my iconoclastic tendencies and point out several errors in the issue for January, 1939.

First of all, one notices an error in the answer to a question in that it is stated "... Helium has never been frozen." According to "Mechanics, Molecular Physics, Heat, and Sound" by Millikan, Roller, and Watson, it was successfully solidified in 1926 at the University of Leiden in the Cryogenic Lab. Temperatures as low as .005 degrees K. have been reached at this laboratory at which temperature all known substance is solid.

Mr. Kummer and I disagree violently as to the effect of CO upon the human organism.

The toxic action of CO is due entirely to the fact that this compound possesses a greater affinity for the haemoglobin in the blood than does

oxygen. The ordinary reaction which takes place in the lungs is believed to be this:



The reaction is reversible and the compound formed breaks up in the body to form the original products thus in the tissues there is a continuous supply of free oxygen.

When CO is taken into the lungs it forms a similar compound, Carboxyhaemoglobin, which does *not* decompose. This effectively causes the haemoglobin to cease carrying Oxygen to the various parts of the body and death results.

The compound is *not* an anaesthetic in any respect. Anyone who inspired enough of the gas to cause drowsiness would be already a corpse.

I shall not be so voluble in stating that the reaction between A1 and water to form A1(OH)<sub>3</sub> is one which does not take place in that it would not go to completion. Any such reaction would defeat its purpose by depositing a layer of the hydroxide over the metal and stop the reaction if indeed the HgO formed previously had not done this. The procedure in question was that of dissolving a lock by means of mercury and water.

I was very pleased to note the resurrection of the old AMAZING STORIES, and note with pleasure the appearance of many of the best authors in science fiction.

On the whole, the science angle is handled the best in AMAZING of all the publications of this type. This fact alone should go far toward establishing it as the foremost of its type.

Would be very glad to hear from anyone interested in science fiction and will make a very serious attempt to answer any screwy questions anyone can think up with the help (willing or otherwise) of some of the brains around the institute.

W. C. Murr,  
Ricketts House,  
California Inst. of Tech.,  
Pasadena, California.

● We are glad to hear from someone who can correct our science fiction errors, although for story purposes, perhaps our authors have taken a little poetic license.—Ed.

### PARRY SOUND "SOUNDS OFF" AGAIN

Sirs:

Glancing at the calendar, and seeing what time of the month it is, an editor who has an office, or what he likes to call an office in the city of Chicago, removes an evilly smelling cigar from his face and rings his secretary:

"Last month about this time you let a certain gentleman in here. This month if you let him in I'll fire you!"

"Yes, sir," chirrup the young lady in question, hastily backing out and making a mental note to call the wagon.

The editor settles back with a sigh.

"Ah, maybe I'll not have to put up with him,"

he thinks, but alas, a mournful snicker behind him warns him all is not well. He turns to see a stoutish gentleman entering through the window to the tune of—

"He's coming thru the door—

Well shut the door!

Now he's coming thru the window.

Well shut the window!"

"You in again?" demands Ye Ed.

"Looks like it, doesn't it?" grins the visitor.

"And I suppose—"

"Yep, you're right!" waving copy of the "fallen aristocrat" before his eyes.

Ye Ed. groans and settles himself for the ordeal. The visitor advances toward the desk whereon the editor hurriedly removes the piled-up papers thereon, remembering their deposit in the wastepaper basket the last time. The visitor seats himself and opens his barrage with—

"Still waiting for the trimmed edges, Ed.!"

Noncommittal grunt.

"And what about a quarterly? The other mag. put a companion out. How about AMAZING?"

Ditto grunt.

"And what about a bigger book, either in format or pages?"

Another grunt, this time almost a groan.

The visitor opens the mag.

"I'm glad to say that the 'fallen aristocrat' is struggling to its feet. This month's issue was pretty derved good!"

"Glad you liked it," at last the editor broke his silence.

"Your cigar's out, old man," sayeth the visitor, extending a pocket blowtorch—lighter to you.

"Is it? Wish you were too!" Ye Ed. comes back, a trifle ungraciously, I'm afraid.

"There, it's going. Yes, the magazine was very well done this month. I haven't even a kick about the science-adventure yarn, 'Treasure on Asteroid X' by friend Kummer. It was quite good and I enjoyed it, and after all, what more can an author ask, and an editor, for that matter?"

No answer from Ye Ed. Is the guy dumb? Or maybe the cat's got his tongue.

"Binder's 'I, Robot' was fine. But—"

"Oh, ya got a 'hut,' have you?" Ye Ed. at last is stirred from his sloth.

"Yes, and that is—lately we've had a lot of stories dealing with robots, how they acted and felt, from their point of view. All are fine and original, hut—and this is a very big but, too—don't run so many that we become tired of them. A little of a good thing is fine, but too much—!"

"Ah huh!" is all the editor can say.

"'Interplanetary Graveyard' was fine, hut I wish Winterbetham had built it up more. Too short, spoiled a good idea. 'Battle in the Dawn' was well developed. Any more and it would have become boring. Any less and it would have been incomplete. Same with 'Scientific Ghost.' It had a

# TELEVISION...

## THE OGRE OF HOLLYWOOD!

The amazing story of why Hollywood fears television. The scientific demands of television will be for telecameramen, and will draw heavily upon the ranks of Hollywood's expert cameramen for its photographic technicians. Read the absorbing story of what television will require; of the opportunity facing the expert cameraman with a knowledge of physics and the science of light.

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A thrilling and informative article on "Color for the Amateur" by Victor Keppler. A modern miracle can now be performed by the ordinary man who owns a camera. Don't fail to read this new story of new marvels made possible for the hand of the amateur.

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nice bit of science in it that a person can chew on. John Russell Fearn never fails to please, and his 'Black Empress' certainly takes the cake. I liked Madge and felt duced sorry for her. 'Death in the Tubeway' seemed jerky in spots. But I liked it. Still, it wasn't new. I've read stories before that had that idea for a tube railroad in it."

"It's pretty bard, you know, to write absolutely new plots all the time," the editor puts in, a trifle sarcastically, too, I'm afraid. "There are only a certain number of fundamental plots and all have innumerable ramifications. Any consistent reader of *stf.* will notice similarities in stories without them being plagiarisms, you know."

"I admit that. I didn't accuse Coblenz of stealing somebody's thunder, did I? No, well shut up then!"

Anxious to get on less treacherous ground, Ye Ed. asks what the visitor thought the best story was.

"Best story? Hum! Pretty bard to decide that. But I think it would be a tie, yes, definitely a tie between 'Battle in the Dawn' and 'Black Empress' with 'The Scientific Ghost' coming next. The worst story was, I think, 'Treasure on Asteroid X.' But that is not a disgrace to Kummer. Far from it. For I think his story would be graded at an easy 75% for all the stories were topnotchers this month."

"Thank you!" Visibly the editor swells. Funny how a little back-patting tickles the best of us, isn't it? And that little streak of egoism shows itself with his next question:

"I suppose you saw the account of the 'time capsule' and about AMAZING being in it?"

"Yes. Sure is nice isn't it? Notice it's one issue one of my letters is in. In 6938 they'll read that letter and their scientists will probably mutter thru their beards, if they have beards then, 'what a funny name, must have been some ape or something!', boy am I glad they won't have a photograph of me!"

"Yes, it is best. Don't you think it's a good idea though for the future peoples of this earth to be able to have first-hand information of bow

we looked, dressed, what stories we liked, and so on?"

"Yes, I suppose it is. But what makes you so sure there'll be anybody on earth then? Maybe there'll only be animals and maybe not even that."

"Pessimist, aren't you? No people! Where do you think they'll all go? Men from Mars get 'em? Or maybe a plague wipe them all out?"

The door opens and the secretary tip-toes in, carrying a sprayer. Ye Ed. sees her, and does his best to keep the visitor's attention trained on him. A quick "squish" of the sprayer and the gentleman passes out. As they drag him away, we see the editor patting the sprayer with an angelic expression on what he calls a face, and murmuring:

"Ahhh! Dear old 'flit'! Whatever would we have done without you this time! Miss Whozit, you get a raise!"

*Leslie A. Crouch,  
41 Waubeek St.,  
Parry Sound, Ontario,  
Canada.*

● All we gotta say, Crouch, is watch 'the next issue of AMAZING for an announcement that'll pin your ears back—and it'll take more than Flit to quiet you then! We promise.—Ed.

#### SEVEN BEST STORIES

*Sirs:*

AMAZING STORIES has undoubtedly improved since you purchased it from its former publishers—the format of the magazine, that is. The editorial policies have changed considerably, many of which have been advantageous. Your artists, Krupa and Fuqua are very good; especially the former. Fuqua appears to have more success when he paints cover illustrations. Your announcement that Frank R. Paul will appear occasionally is satisfactory to me. However, do not neglect Fuqua and Krupa.

I have read thoroughly each issue of the new magazine, and I think that listing the best story in each issue might possibly help you in your choice of stories for future numbers. Here are the seven

## SCIENCE FICTION PROPHECY COMES TRUE!

FIGHTING PLANES RAINING DEATH FROM THE SKIES, WITHOUT A HUMAN SOUL ABOARD! You have read of planes like these many times in science fiction. Now read the TRUE story of unmanned aircraft, controlled by radio operators a hundred miles away!

R. A. ISBERG, Radio Engineer of Station KOA, reveals the secret in his challenging article

A RADIO CONTROLLED MODEL AIRPLANE!

In the February Issue of

**RADIO  
NEWS**

best stories you have published—one from each issue:

June issue—"A Summons From Mars," by John Russell Fearn.

August issue—"Time for Sale," by Ralph Milne Farley.

October—"Revolution of 1950," by Stanley G. Weinbaum.

November—"Revolution of 1950," (2nd instalment).

December—"Ghost of Mars," by Festus Pragnell.

January—"I, Robot," by Eando Binder.

February—"Mr. Craddock's Amazing Experience," by Wm. F. Temple.

How many readers agree with my various choices? I suppose there are many who violently disagree, too.

One of your best features (I should say, your "best") is the back cover illustration. All of them have been excellent, with those by Harold W. McCauley outstanding. "This Amazing Universe" and "Future Rocket Train," in the June and January issues respectively, have been two of the most beautiful science fiction illustrations it has ever been my good fortune to see.

Robert A. Madle,  
333 E. Belgrade St.,  
Philadelphia, Pa.

● Your list is interesting, and varies a bit from the selections of the average reader as set forth in our summary each month. This list runs as follows:

June "A Summons From Mars."

Aug. "The Meteor Monsters."

Oct. "Locked City."

Nov. "Secret of the Ring."

Dec. "Ghost of Mars."

Jan. "Battle in the Dawn."

Feb. "Wanted: 7 Fearless Engineers."

Perhaps our readers would like to pick out the best of this list, and make the argument still more interesting?—Ed.

### DELIGHTFUL

Sirs:

"Mr. Craddock's Amazing Experience," was in some ways delightful. There was some of H. G. Wells in it. The science, if you will pardon me, was quite screwy. Treating the Fourth and Fifth Dimensions in the same material way—obstructions, bouncing, and speed—and applying all our three-dimensional laws to them, is just too too. It was, however, a new idea, for which we should be thankful.

The cover is better this time. I don't want Paul at all. Your present cover artist has everything; Paul hasn't.

You answer to the person in "Discussions" regarding publication of "The New Adam," leaves, it seems, still the possibility that if enough requests are entered, you will publish it after all. I heartily enter mine. I haven't read a one of Stanley Wein-

baum's works that I didn't like, and if "The New Adam" attains anything of the stature of "The Black Flame," it would be simply sinful not to print it.

The use of colors on your back covers continues to make them super-attractive. I do think you need another artist for some of the interior work, simply to lend variety.

John A. Bristol,  
5134 Conduit Road,  
Washington, D. C.

### COMMENTS AND SUGGESTIONS

Sirs:

I'm pleased to see AMAZING back again at the head of the field where she rightfully belongs. So far as makeup is concerned, the Feb. issue is the best yet. Fuqua made a good start on covers, took a surprising and decided plunge, but redeems himself in fine style with the Feb. cover. Inside illustrations are the best in the field.

I see neither a rise nor a decline in the literature; some stories are good, some indifferent, none so far have been very bad; but I can understand Louis Kuslan's attitude on the love theme when it is handled in such adolescent style as in Steele's "Phantom Enemy." I've never yet met a girl who blushed and flushed so freely as that heroine. Don't cut out the romance, but keep it mature and reasonable.

And for the love of Mike, I'm getting tired of these authors who always take it for granted that interplanetary travel—to say the least!—is an accomplished fact, full of boredom and heroes who are always saying "Sizzling rockets!" or some such inanity. I blame E. E. Smith for this influence, for he's the first author I recall who used futuristic slang—and the only one who made it sound right!

Very little of modern science fiction is done seriously. Most of it seems to be written by kids (I'm only twenty-five, myself) who pattern their material after Buck Rogers and Flash Gordon—both excellent after their fashion. The majority of the Old Timers have vanished away, given up in disgust I suppose, and they are only slowly returning since the inception of the new AMAZING. I remember distinctly the thrill I got from another "serious psychological study," "The Gladiator," by Wylie, a story that no science fiction magazine would have published; simply, I suppose, because the stf. public isn't mature enough. It's a great pity.

Give us a story from John Hawkins, who wrote "The Ark of Fire" for the *American Weekly*, the most amazing and moving piece of science fiction in a decade. Hawkins, I suspect, is a pseudonym of a well known writer.

I received with rejoicing the word ament Paul. I'll say no more there; you make me quite happy. But please adopt the magazine's olden policy of editorial comment on each story to be placed in a box on the first page. You do that to a certain extent in your "Observatory" but that isn't enough. In this day of science fiction phantasies and fairy

tales, I'd like to have the editorial okay on my reading. Frankly, I just can't swallow some of the ideas. It isn't much to ask and it will add dignity to the publication.

Also, adopt the large format for the same reasoning; none of the others have it and it will add to the appearance. If you really want to be above your competitors you'll have to get away from the format style of the "western" type of science fiction periodicals that are springing up with blood'n thunders to cater to the newer element. Keep AMAZING STORIES where it used to be—the one and only.

*Fred H. Miller,  
314 Wheeler St.,  
Spartanburg, S. C.*

● Fuqua has turned in several very fine covers for our forthcoming issues, and you will find him to be improving each issue.

About that question of whether there are girls who blush easily, in this sophisticated age, your editor knows several who blush on the slightest provocation. It doesn't seem to be a mental reaction, but a physical one which some people can't control. To be perfectly truthful, your managing editor finds himself getting red under the collar many times, and he just hates to think that a girl could heat him to it.

Maybe some of our authors will do something about this business of taking interplanetary travel too lightly. But as for slang, every age has had it, and is it unnatural to assume that future people will have their pet expressions?

Editorial okay? Well, there I must stop and blush. We had thought that the mere fact that we bought the story meant we thought it was okay for our readers.—Ed.

### ABOUT SABER-TOOTH TIGERS

Sirs:

Tsk! Tsk! You pride yourself on the scientific accuracy of your stories and then you go and edit a saber-tooth into Wellman's story of Aurignacian Europe in the Jan. A. S. By that time these pseudo-cats had been extinct for many millennia, at least in Europe. It wasn't even necessary: you could have used a cave-lion (even more formidable than the saber-tooth) or a cave-leopard, and been correct. Again, Sir, Tsk. Regards.

*L. Sprague de Camp,  
44 East 63rd St.,  
New York, N. Y.*

● Your comment has an element of mystery. How'd you know the saber-tooth was edited into the story?—Ed.

### A CHANGED OPINION

Sirs:

Keep up the good work. You're doing splendidly.

A couple of days ago I wandered over to the corner drug store, thinking of getting an aviation novel, but happily, I saw the December issue of AMAZING STORIES. Say, did my eyes bulge! Your

cover was swell and so were the stories, with the exception of Patrolman E6 Gets His Man. Too much cops and robbers.

I have a few suggestions that I think will help. First, get smooth edges. Next have more cover artists. It's nice to have a variety of artistic styles.

You have really changed my opinion about the mag. From now on you have a steady customer in me.

You ought to be in Who's Who!

*Wallace Milton  
1213 E. 9 St.,  
Long Beach, Calif.*

● Thanks for the good word, Mr. Milton, but in the vernacular, "you ain't seen nuthin' yet!"—Ed.

### THE "DEATH RAY"

Sirs:

I picked up the new AMAZING Saturday and was very surprised and pleased that you had acknowledged my letter so soon. I am sorry that I did not make my address clearer. Although any letter sent just to Ft. MacArthur, Calif. would have reached me, the full address is Btry "E" 63rd C. A., Ft. MacArthur, San Pedro, Calif. Now that you have my full address I would certainly appreciate it if you would insert my request.

J. Harvey Haggard's "The Light That Kills" is something that I have been waiting for ever since I have been reading Science Fiction. It has always been my theory that there never will be any such thing as a portable death ray.

That sounds silly, but it is nevertheless a fact. There are several workable death rays, but that none of them are practical. They all depend upon the use of tremendous amounts of power. In fact, don't all the stories in which death rays play an important part speak of the amounts of power unleashed. Imagine a man carrying upon his person the equivalent necessary to obtain and utilize this power. Until some author can figure this out for me I would sooner see my villains killed with explosives than so many s.f. writers scorn.

But to get back to Mr. Haggard's story. He demonstrated my point very clearly. It is true that he killed off his whole army by rays which caused death, but he did not use little E-flat death rays to do it. He utilized all the powers of nature to do it. That seems to me to be the practical solution for the problem.

*N. E. Kenealy,  
Btry "E" 63rd C. A.,  
Ft. MacArthur, Calif.*

● You've got a very good point there, Mr. Kenealy, and it is worth discussion. Death rays always have been a point of contention, for the very reason you point out. To get a lot of power, you must have an adequate source. And a Niagara certainly isn't portable. How about it, readers—and authors?—Ed.

### THE JONES ARTICLE

Sirs:

I have been reading your magazine for quite

some time and never yet have I read an article so interesting as the one by H. W. Jones in the last month's issue. I would be very grateful if you could tell me where I could get additional information concerning the subject.

Most of your stories are fine, but I would like to see less space-yarns and more stories dealing with biology and chemistry right here on earth.

I would like to see some more color-photo covers because the ones your artist draws are utterly fantastic and silly looking.

*Val Vodicka,  
2431 First Ave. West,  
Cedar Rapids, Iowa.*

● If you will write Mr. Harvey W. Jones, 909 Oriental Ave., Collingswood, N. J., who wrote the article, "The Fountain of Youth is Frozen," he will be able to give you information on the subject. When writing him, enclose return postage. This department does not answer personal letters (please note, Mrs. A. Paul), because of the large volume of mail we receive.—Ed.

### TRADITION

Sirs:

When AMAZING STORIES first appeared, way back in 1926, I hailed its appearance with joy, because it filled a long-felt need. From the first it was a sensational magazine, and for many years it continued to give the reading public something that was different, new, and exciting. It meant a milestone on the road to scientific progress, to me, and I never missed an issue.

I was an ardent supporter in the days when it earned the well-merited title of "the aristocrat of science fiction."

But then came evil days. The great aristocrat fell terribly low. But many faithful fans continued to buy it. I was one of those. It was with sorrow that I saw many of the others switch to a rival publication. That rival built up a following, and while I admit they put out a darn good magazine, and deserved to be called the leader in the field, yet, I held a fond attachment for the old AMAZING STORIES. I felt hurt because my beloved magazine wasn't occupying the position that other magazine enjoyed.

Then came 1938 and Ziff-Davis. From the first issue they put out a magazine that had everything. Good stories—and I don't mean just good science (and they had that in plenty) but really dynamic stories with people you could picture as real people, with real thoughts and emotions and reactions. These stories have been getting better with each month. In other departments the magazine was pepped up. Discussions took on new vim and vigor. Articles became intensely interesting. And a new feature that makes all other pulps look like amateurs, the back cover, made it just about perfect.

Now, I'm an avid science fiction fan, and I read all the science fiction I have time for, and I know quite a few other fans. I read their fan magazines. And I've formulated an opinion about science fic-

tion readers. They are a tradition ridden bunch. I stuck faithfully to AMAZING STORIES, all through, even though I knew it was a lousy magazine during the bad years. It was a tradition with me. When you are very young, you are set in your opinion. First impressions seem to you to be most important, and unalterable. I realized AMAZING had slipped, but I wouldn't admit it.

Now I am hoist by my own petard. The new crop of readers, those who began reading science fiction during AMAZING's bad period, swear by all the eternal that the best magazine of that period is still the best, and even though they enjoy the new AMAZING to the utmost, they still bleat to me—so-and-so is the unquestioned leader in the field.

Unquestioned, eh? So that's it! Well, it's about time some of us old timers got a little of our old youthful fervor back and began doing a little questioning. I say AMAZING is without a doubt the best magazine in the science fiction field, and is even better than it was in the old days when it earned the title it still unquestionably holds! How about it, you other old timers? Remember the old Sciencecers, Science Fiction League, Science Correspondence Club, Cosmology, Fantasy Magazine, and others? They were fans who really were fans. They accomplished things that have never been equaled by any group of fans since. I admit I played a silent part, as spectator, to what they did, but still, I followed their activities, without actual participation, with as much interest as any other AMAZING STORIES reader.

Now, one of those old-timers, one of the best, I might add, is making AMAZING STORIES the kind of a magazine we all like. The magazine is getting the benefit of real science fiction experience. And how it shows it!

Three cheers say I for the leader in the field!  
*Unquestionably!*

*H. G. Warner,  
Route No. 1,  
Hudson, Wisconsin.*

### "GOOD OLE DAYS"

Sirs:

Congratulations! The return to the monthly schedule pleases me greatly, as does the general form of the magazine. However, even the poorest science-fiction story is a treat to my imagination, so my brick-bats are few and far between.

The point of view of this letter is the prayer that you may obtain an article on gravity control from the noble pair, Dr. F. T. Holmes and Professor J. W. Beams of the University of Virginia. According to the paragraph in the Observatory of the November issue they should be able to give we fans of Science-Fiction some real meat to chew on.

But, please, if such an article can be obtained, don't offer a flock of mathematical formulae in explanation of the phenomena. Nothing gripes me quite so much as an explanation which looks like something a goat might have coughed up after trying to eat a typewriter. Have the works explained

in understandable words.

Authors? I like 'em all. Some better than others, I'll admit. Merrit, Verrill, Campbell, Smith, Keller, and several others have turned out masterpieces in the last fifteen years that will live long in the annals of Science-Fiction. What's more, I have read all of them and am keeping my copies to re-read now and again. When my kids are old enough to enjoy them, I won't have to bemoan the "Good Ole Days." No, Sir! We will dig out our treasures and enjoy them together.

Donald G. Reed  
2454 Lyric Ave.,  
Los Angeles, Calif.

### ARTISTS

Sirs:

Well, Mr. Editor I resisted writing to you on many occasions because I thought the magazine was very good, but I find I can not resist any longer after I saw Paul mentioned. Paul may be all right in drawing alien worlds but he makes all his humans look alike as Mr. Crouch stated in his letter. If we must have another illustrator there's another that works for one of your rival magazines, perhaps you have heard of him, his name is Alex Schomburg. I believe some think that his work equals only the great Marchioni. Well, I'm one of those guys. You had the other readers vote if they wanted Paul, so now I'm asking for another vote if the readers of AMAZING STORIES want Schomburg. I know for a fact that some readers prefer him to Marchioni. What do you say, Mr. Editor?

Blaine R. Dunmire  
414 Washington Ave.,  
Charleroi, Penna.

### READS FIVE S-F MAGS

Sirs:

I am a fan who reads all five of the science fiction magazines and I believe AMAZING STORIES leads them all.

Your artists, Fuqua and Krups, are plenty good so why bother with any others. If possible, inject a little more humor into your stories, and how about a bloodless battle some time for a change?

Vernon Eames  
302 South Fifth St.,  
Millville, N. J.

### COMPLIMENTS FROM AN AUTHOR

Sirs:

I have read both your January and your February issues, and have the following comments to make:

1. The outstanding stories of the two issues are, first, "Battle in the Dawn," and secondly, "I, Robot," both in the January issue. Both are classics. No other story in either issue even approaches them.

2. Isn't it remarkable that, with the fans all still bowling for you to stick to strictly science fic-

tion, your best story in a long time should be one that cannot, by any remote stretch of the imagination, be called science-fiction? Namely, "Battle in the Dawn."

3. Stan's and my "Revolution of 1950" came very close to not being science fiction. Yet it ranked second for November.

4. And yet, in the face of these two successes, you still refuse to print "New Adam."

5. The polar-bear problem was one of the best catch-questions I have seen in a decade. Congratulations.

6. Merry Christmas and a New Year of even greater prosperity.

Ralph Milne Farley,  
1265 Fairview Ave.,  
South Milwaukee, Wisconsin.

● Thanks for the praise, Ralph. We have a hunch the readers are going to be listing some of your forthcoming stories in that "classic" category too. We all remember your sensational successes in Argosy, and we're tickled to death that you've decided to do some more of that kind of material for AMAZING STORIES. (Aside to readers—watch for a really fine yarn by this old favorite of science fiction readers—we promise it'll be worth waiting for.)—Ed.

### THE OLD LADY THAT LIVES BY THE CREEK

Sirs:

Your magazine has been read by me ever since it began and is enjoyed very much. I like fiction and think that the better way to educate one painlessly, but I dislike to pay for scientific articles and pages of half-baked ideas in small print, so kindly limit the letters and don't be stingy with your AMAZING STORIES.

"The Moon Pool," "The Land That Time Forgot," are my favorite stories but have enjoyed most of them.

I do not see anything amazing about your questions and answers.

Julien Hawthorn's "Cosmic Courtship" was a favorite, although not printed in your magazine. Have often wondered where Julien is.

Do not like pictures mixed with my stories. They take up story room and usually do not agree with my conception of the subject they are illustrating.

The small size magazine is more easily handled by an invalid or convalescent and large print is necessary to most of us.

While some say I must be crazy to enjoy your kind of tales, I admit I'd rather be crazy than a stuffed shirt, so keep on publishing and I'll try to buy. How some borrowers have taken some of your numbers and never returned them has riled me because they may be read again and again, but I have all of your magazines that I have not loaned.

"The old lady that lives by the creek,"  
Helena Greening,  
Westfir, Oregon.

● We're certainly glad to hear from one of our older readers, and we sincerely hope that AMAZING STORIES helps to pass the time pleasantly, and gives you so much pleasure. It has often been said of the science fiction fans that it isn't necessary to be crazy to read science fiction, but it helps! But we don't care, do we? Those others don't know what they are missing!—Ed.

### SARCASM?

Sirs:

#### CONGRATULATIONS!

Your editorial policy is terrific! Words cannot express my gratitude to you for having realized that sex and accurate science are essential to science fiction. If only everyone would realize that "style" is of no importance whatsoever—then the world would be a happier place.

Keep it up, and give us more and more love interests, and increase the proportion of science till the stories are like miniature text-books. That's what we fans pay for. And the idea is so unique!—think of all the other magazines that don't publish love stories!

Why, in time, if ye editor can succeed in deleting "style" from the stories, we may have a magazine publishing SYNOPSES! Joy, joy, joy!!! Just imagine the kick we'd get out of reading skeleton stories, without having to wade through a mass of superfluous words and descriptions; the bare outlines only—science and sex in synopsis form! That would truly be the golden age of science fiction!

You know, when you come to think of it, the old authors didn't know a thing! Merritt, Manning and Taine aren't so hot when compared with such magnificent writers as Fearn, Binder, and Ernst. The latter three stand supreme in the field today; particularly Fearn whose work shows genius of a high order.

I have nothing but praise for your illustrators; and even the great Virgil Finlay must bow down before the mighty pen of Jackson.

In fact, "AMAZING" is at the top,—so far at the top that it must have gone right around space and come out at the bottom!

Yes, I am aware that sarcasm is the lowest form of humor, but the same rule applies. This sarcasm is so durned low that it must'a shot clean into the fourth dimension and popped out at the top. May you ever improve.

*Yours sincerely,  
David McIlwain,  
14, Cotswold St.,  
Kensington,  
Liverpool, 7,  
England.*

● Never in our experience have we received a letter bearing so much unstinted praise. It is sweet music to our ears. Joy, joy, joy! Here is a reader who is eminently satisfied. And we agree perfectly. In fact, AMAZING STORIES has continued on around space, and now, ('s'truth) it's come back out on top again! What a rave we'll get from you, Mr.

McIlwain, when you discover that your sarcasm (for which we very graciously forgive you—knowing what an ardent fan you really are) has become quite apt, and now has become gospel fact. And we further promise you that our authors will throw so much "style" and "story" at you, that you'll positively swim in delight forever henceforth. An' hlimey, 'ere's my hand on it!—Ed.

### MOTION PICTURE

Sirs:

I saw the motion picture, "Mars Attacks the World." No wonder science fiction hasn't gotten anywhere in the movies. Ham directors, and actors. Can't something be done about this?

*Henry E. Bringwald,  
S.S. Eastern Crown,  
100 Milk Street,  
Boston, Mass.*

● It is true that the film industry has not yet gotten the proper slant on science fiction movies, but there have been some excellent attempts, namely, "The Invisible Man," "Things to Come," "Mysterious Island," "Frankenstein," etc. Certainly we can't expect to teach Hollywood the way science fiction movies ought to be made without making a concerted and continued effort to do so. Perhaps the answer here is for all fans who want science fiction movies to write to producers of science fiction movies, offering constructive and helpful criticism on their efforts, and encourage them to continue.—Ed.

### SHORT—AND SWEET

Sirs:

Just a short note to let the editors of AMAZING STORIES know that I think it is perfect just as it is. Don't change a thing. Stories are excellent, illustrations are very good. Front cover artist is a wow, and you've really got a fine idea in that back cover feature. It's tops.

*Warren Mills,  
Rt. 1,  
Ishpeming, Michigan.*


### CORRESPONDENCE CORNER

Jack Murtagh, 625 Nelson Street, Hastings, New Zealand, wants to procure AMAZING STORIES, Vol. 1, Nos. 1, 2, 3, 4 and 9. Vol. 2, Nos. 3 and 4. Quarterly, Vol. 1. No. 1. . . John G. Todd, Chelsea-on-Hudson, New York, would like pen pals. . . William Schrage, 74 Newman Street, So. Boston, Mass., wants pen pals from United States and foreign countries. . . Abraham Oshinsky, 2855 West 25th Street, Brooklyn, N. Y., wants readers in New York who are interested in helping him organize an astronomy club to contact him at once. . . Ted Hodges, 1007 Broadway, North Bergen, New Jersey, wants correspondents from all over the world. . . Robert Schleip, 245 Fountain Ave., Dayton, Ohio, has complete set of AMAZING STORIES from April, 1926 to October, 1938, which he wishes to sell. . .





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# UNDERSEA SALVAGER

CONCEIVED AND DESIGNED BY H. W. McCAULEY

On our back cover this month we have presented a future undersea vessel designed for salvage and exploration. Although imaginative, it may easily become a future reality

During the past three hundred years, much of what has been considered the unexplored portions of the globe has been placed on the map. There still exist "dead spots" where white men have never trod, but they are few, and will eventually become definitely charted. However, the land portions of earth take up only one quarter of the entire surface, the greater area by far lying beneath inaccessible depths of water.

What marvels lay beneath the waves that wash over three quarters of the planet? Legend places two lost continents beneath the sea, and remaining relics still above water (notably the enigmatic statues of Easter Island) would seem to indicate mighty civilizations indeed. Mighty Lemuria, which possessed the secret of atomic energy, and Atlantis, haven of unsurpassed art culture. Buried beneath waters that never move in the great depths, preserved in hardening muck that will someday become mosaic-patterned marbles, incredible secrets may lie.

But aside from the mysteries of long-gone ages, we do know of the treasures the sea contains, waiting to be salvaged from their watery tombs. And we know something of the geographical topography of the ocean floor; of Maricot Deep, of the Grand Canyon off New York, of the great Plateau in the Pacific. Down there in the blackness lie natural grandeur that dwarf those of the lands above water.

All this is waiting to be explored and exploited.

Artist McCauley has envisioned a super submarine of the future, which may bring the answer to these many questions, and bring to man a source of wealth that may well prove inexhaustible. Great (and soon to be necessary) oil fields, metallic deposits, and now unknown sea products. Ex-

ploitation, exploration and salvage will be carried on by this marvel of the deep.

Constructed to resist great pressure, this submarine will have specially formed steel walls, reinforced by clever science to attain a maximum of resistance to buckling and bending. It may easily equal and surpass the depth attained by Beebe in his bathysphere. Its amazingly thick hull will be provided with thick, laminated shatter-proof glass ports, incorporated into the walls as an integral part of the wall, and as strong as the metal itself. Powerful searchlights, utilizing not only ordinary light, but infra-red, and ultra-violet and other radiations invisible to the human eye, but capable of being transformed into visible reproduction inside the ship, will give the oceanographer almost daylight visibility of his immediate surroundings.

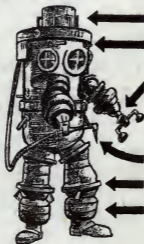
Photography will aid in the mapping of the undersea terrain, and in the discovery and location of the treasures, both natural and sunken, to be found on the sea floor.

A television type periscope will utilize magnetic and radio waves in reproducing in miniature the entire scene outside to an observer in a circular, semi-globular room, giving him perfect control of

the ship in its surroundings.

Portions of the ship will be constructed to admit the sea, opening in the hull by means of overlapping eyelid type doors, to allow for giant derricks and grapples, retractable in construction, capable of retrieving any discovered object, or attaching magnetic grapples to metallic hulls, lifting them bodily to higher depths where divers, in improved suits may emerge and complete salvage.

At lesser depths, where divers may work, the salvager may be anchored by means of retractable



Helium-oxygen tank.

Short-wave radio and suit controls here.

Suction clamps to remove cutaway sections of metal hulls.

Cutting torch.

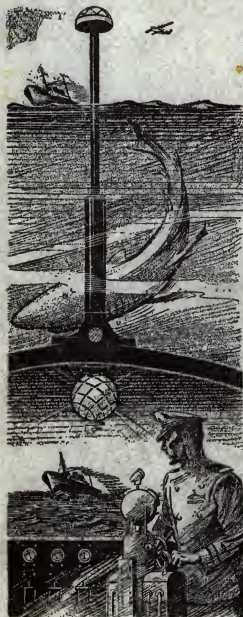
Sealed semi-ball joints in legs and arms.

Lead weighted legs insure erect position.

*Diving suits such as this are already in use, and Max Nohl, of Milwaukee, has descended into Lake Michigan to a record depth of 420 feet in a similar suit. In a national hookup, he actually broadcast from the bottom, during the entire attempt. He plans to salvage the treasure of the Lusitania.*

supports, allowing the submarine solid foundation for basis of operations, above the muck and ooze of the bottom. Divers may work from any side of the ship, or from top and bottom. Ladders may be lowered or raised from the ship in any direction, carrying divers to locations predetermined by the master television periscope.

Inside this giant ship, powerful Diesels will pro-



*This periscope will utilize new principles of light phenomena to reproduce the surrounding scene in all its natural color and project it on an encircling screen.*

vide motive power, pump water from ballast tanks, diving tanks, and retrieving hulls. Atmospheric conditions will be maintained at surface normal for the crew working on the interior, while equalizing chambers will provide divers with a means of acclimatization without need of ascending to the surface. Long ascents and descents will be eliminated, thus saving valuable time for working on the sea bottom itself.

In areas of muck which is easily disturbed, and which would absolutely hide vision and prohibit intelligent work, radio frequency waves will provide a means of precipitating the objectionable matter once more to the ocean floor.

Powerful pumps will flush away obstructing mud and uncover buried objects, remove deposits from wrecked ships, and even uncover the clay or stone bed beneath, leaving only heavier objects for salvage.

In the case of shipwrecks, this submarine may even be useful in rescue work, perhaps in the case mostly of submarine disasters. However, due to its great size, this salvager would be relied upon in the great majority of cases only for material salvage, rather than the saving of lives.

In exploration, this submarine may fathom the mystery of ocean currents, and how they may effect the climates of countries whose shores they sweep. It may even be possible that currents may be partly controlled, if not for climate purposes, at least for natural harbor construction, and partial diversion for purposes of removing dangerous bars, shoals, and reefs. Natural breakwaters may also be built to protect existing harbors, by providing a base for construction of concrete retaining walls.

It is certain that engineering will play a vast part in the development of the sea bottom, and perhaps even such things as undersea pleasure resorts may be constructed in areas of coral in the more shallow water.

Certain seaweeds are peculiarly adaptable to food processes, and this explorer may well discover vast areas of edible weed, or growths of medicinal value, and thereby present to mankind new and valuable natural wealth.

Also there is the prospect of undersea mines, and the working of valuable mineral deposits which must certainly exist as profusely as on lands located above water.

The science of fish life may also become an important one, and it can easily be imagined as becoming commercially important.

It is certain that a salvager of this type would be of incalculable benefit to mankind, and science can make it a reality in the future. Today, more than ever, man is preparing for the conquest of a greater world than any yet subjugated on earth's surface. Only in outer space do greater worlds challenge the conquest of man's science.

Perhaps it is with super submarines of this type that man will found a new empire of wealth on the ocean bottom. Scientific advancement definitely points that way.

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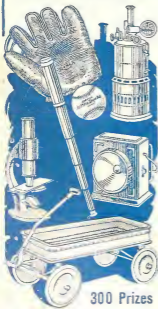


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# UNDERSEA SALVAGER

The greatest unconquered frontiers on earth are the sea depths. This supersubmarine, built specifically for exploration and salvaging is scientifically constructed to withstand great pressure, capable of descending to depths as great as that achieved by Beebe's bathysphere. Retractable gear will insure solid foundation on any type sea bottom; special sea chambers will allow divers to work with assured safety. At super depths, salvage will be done from inside the ship, by retractable derricks, perhaps lifting whole ships to levels permitting divers to finish the job. Searchlights using ordinary light, infra-red light, and ultra-violet rays, coupled with a television periscope system permitting complete 360° vision, will allow scientific exploration of these realms of eternal night and mystery. See Page 145 for details.

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